Gleanings in Bee Culture

Created to help beekeepers succeed

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Beekeeping in British Columbia

By W. H. Turnbull, Apiary Inspector, Vernon, B. C.

Apiary in alsike clover field in Prince George, British Columbia.

In 1911 F. Dundas Todd of Victoria gathered a few beekeepers together and managed to get a list of about 130 from the whole of British Columbia. This was the beginning of organized beekeeping in the Province.

Some 40 years prior to this the first colony of bees brought into the Province was landed at what is now known as Crescent Beach by a man by the name of Smith. They were taken to Fort Langley and the increase (in natural swarms) from the two original colonies took to the then virgin forests of the Fraser Valley and soon healthy colonies of bees were found in hollow cedar trees everywhere. One such tree growing on the site of the University of British Columbia, when cut, yielded a good strong colony of bees and over 800 pounds of honey. Many of the British Columbia apiarists started in this way and some apiaries were increased to as many as 50 colonies before any Italian queens were imported from California.

Immediately following 1911 and the appointment of F. Dundas Todd as Inspector of Apiaries beekeeping increased very rapidly and in 1926 over 4,500 were registered with the Department of Agriculture.

In 1916 the Beekeepers' Associ-

Dominic Torio, pioneer beekeeper in Dawson Creek, British Columbia.

ation of British Columbia was organized and continued until 1923 when it was amalgamated with the British Columbia Producers' Association which organization with 15 divisions covering the Province is still very active in all matters pertaining to beekeeping. No report of beekeeping in British Columbia would be complete without giving credit to some of our grand old men of beekeeping, most of whom have passed on: F. Dundas Todd of Victoria, W. H. Lewis of Burnaby, W. G. Sheppard of Nelson (our first Provincial Apiarist), William Hugh of Cloverdale, H. Langdon Johnston of Chilliwack, and Leonard Harris of Vernon. These men have all gone on, but the foundations they laid have gone a long way toward building the stable industry we have today. To this list we must add the names of A. W. Finlay of Abbotsford, who for many years was the Provincial Apiarist, J. W. Winson of Huntington, Fred Bettschen of Vernon, Fred Pearcey of Kelowna, Dominic Torio of Dawson Creek, G. F. Stones of Burton, who are all still active. Both groups were pioneers and are entitled to all the credit due them as such.

British Columbia is a large Province and, with the exception of the Peace River District in the extreme northeast corner, is all mountains and rich fertile valleys along the lakes and rivers. This situation divides the country into at least six distinct sections, each one with its own climatic problems as well as difference in soil, temperature, and altitude.

Each district has a honey that distinctly marks it as from that particular place. The Frazer Valley, if it has a distinct honey, can lay claim to a maple-flavored honey. This comes from the big leaf maple and is one of the finest honeys we have. It is quite often mixed with dandelion which spoils the delicate maple flavor. The southern interior valleys have an early honey that has an apple blossom flavor which is distinct and is one of the most delicate of flavors. Later in the season the northern end of the interior yields a very fine alfalfa honey in most cases flavored with alsike and sweet clover.

Kootenay honey has a different flavor again as spreading dog-bane and firewood leave its haunting flavor on the tongue of the honey user, who, like Oliver Twist, is looking for MORE.

The Northern Central Plateau yields a honey that is an almost

pure alsike clover which in the minds of many of our people is associated with old Ontario and they are not inclined to give the first place to any other flavor.

Our Peace River honey is the product of thousands of acres of the finest clover (yellow and white sweet), alfalfa, alsike, and a flavor through it all that only a connoisseur who is well acquainted with the different floral flavors would recognize as silver berry (**Alaeagnus argentea**) that stamps it as one of the finest of our fine Canadian honeys.

Last but not least we have the honey from the mountains and valleys of Vancouver Island. The honey from this district is, as is justly claimed by many of the Vancouver Island beekeepers, a truly **wild flower** honey. The hills and valleys are covered with a wealth of nectar-bearing wild flowers in which fireweed and salal berry predominate. This, combined with white Dutch clover which grows wild in every opening and skidroad as well as all the wild berry blossoms, gives a honey that though rather darker in color than honey from the rest of British Columbia, has a flavor that most residents of Vancouver Island and many visitors who taste what is often called "wild honey" for the first time, never forget.

Six Distinct Districts in British Columbia

In view of the aforementioned six distinct climatic districts no one system of beekeeping can be taken to apply to the whole British Columbia. On Vancouver Island lying between the Pacific Ocean and the Mainland conditions are entirely different from any other part of the Province. The climate is very mild, being tempered with the warm breezes from the Japanese Current, which washes the western shore of the island. Wintering is no problem here as shelter from the wind and sufficient stores are about all that are necessary. The season here, too, is from two to three weeks earlier than it is on the Mainland only 60 miles away, and the flora has quite a different time of blooming.

On the Mainland the Frazer River breaks from the mountains at Hope, 90 miles east of salt water, and the valley of the Frazer is in many places 40 miles wide. Conditions here, too, are changing as 40 years ago this was all virgin forest. As the timber was cut, the logged-off lands were overgrown with thou-

Starting a new apiary in Okanagan Valley, British Columbia.

Left to Right Sitting: W. G. Sheppard, L. Harris, Alex Kier, F. Dundas Todd. Standing: (L) A. W. Finlay, (R) W.H. Turnbull.

This map shows (I) Vancouver Island, (II) Fraser Valley, (III) Upper Fraser and Thompson Valleys, (IV) Okanagan and Kootenay Valleys (which are part of the Columbia River watershed), the (V) Northern Central Plateau, and the (VI) Peace River Bloc.

sands of acres of fireweed, which plant, under certain conditions yields immense quantities of a very light-colored and delicately-flavored honey. Gradually conditions changed and the logged-off lands were cleaned of stumps and seeded down to clover and various small fruits. This condition meant the breaking up of the large apiaries into smaller ones and gradually beekeeping developed into a profitable sideline.

It does not pay to carry on migratory beekeeping in the Fraser Valley as there are too many small owners scattered the whole length of the valley. Many berry growers carry a number of colonies for cross pollination.

In the interior valleys, conditions change again 160 miles from the Coast. The country flattens out along the rivers and lakes and quite large pockets of good arable land are found. The districts along the upper Fraser and Thompson River Valleys support quite a large number of commercial apiaries. Migratory beekeeping is carried on in quite an extensive way and crops of honey are practically assured the operator who works hard at his job.

Further inland are the plateau areas which are natural cattle ranges. Clover and alfalfa are grown here for winter feed for stock, and migratory beekeeping is carried on quite extensively and with a good measure of success.

We then have the valleys of the

Okanagan and Kootenay Lakes. Fruit growing is carried on here very extensively and in the southern parts of the valleys we have some of our largest apiaries. The fruit growers need the bees for cross pollination and many of our beekeepers reap a dual harvest by renting the bees to orchardists as pollinators and then gathering a honey crop from the sweet clovers used as cover crops. Some loss is experienced by the uncontrolled use of poisonous insecticides at the wrong time of year, but more cooperation between fruit grower and beekeeper is gradually decreasing this handicap and some real crops of honey are harvested in the heart of the orchard country. Northern Central British Columbia is a potential honey country and a district about 150 miles wide and 400 miles long lies along the upper reaches of the Fraser and Nechako Rivers. This is pioneer country and possibilities for expansion in beekeeping are unlimited. There are some 100 beekeepers in this district and they report varying success. Wintering in this district is a problem as it gets very cold at times but well-packed colonies winter well.

The Peace River Bloc of British Columbia lying along the head waters of the Peace River and its tributaries is a natural honey country. There are some 60 beekeepers located there and we have had reports for the last 15 years all of which are good. This area is one of the best seed-growing districts in Western Canada and all clovers and alfalfa grow their best and develop large seed crops there. Bees are needed to insure pollination of seed crops and in return the plants yield nectar very freely. Averages of from 200 to 250 pounds are very common and many report much greater averages in small apiaries.

A sample of the colonies in Peace River, B. C.

Wintering here is a real problem but which no doubt can be worked out. At the present time, however, it is a package bee country and bees imported early in May are ready for the heavy flow in July. There is room in Peace River for thousands of colonies and these in the hands of experienced beemen will return good profits. It is, however, a pioneer country and it will require plenty of courage and vision to make a success of beekeeping there but the beekeepers already have proved it can and is being done.

With the exception of the Central Interior Plateau and the Peace River Bloc, British Columbia has all the bees the country can carry for honey production, and beekeepers located at the present time will with the natural increase take care of requirements very nicely. In the two exceptions mentioned the situation is entirely different as very

large areas are without bees and prospects for increased production are very bright.

Marketing conditions in our Province are very good. At the present time we are not producing over 40 percent of what we consume and we have several large consuming centers.

Distances between points in British Columbia are very great but highway construction going ahead at the present time will bring our centers of production much nearer the consumer in the very near future.

The Department of Agriculture has just completed a new film entitled "The Beneficent Bee" in technicolor, showing the value of the honey bee to agriculture, some excellent views of the flora of British Columbia, and many of our commercial apiaries. This is a silent film but it is well titled and should prove of real value to the industry as well as introducing British Columbia to many people who are looking for a pioneer country to start keeping bees.

Bee diseases are practically unknown in the newer sections of our Province and our laws are designed to keep them as free from disease as possible.

An Experience To Remember

By A. L. Gallop, Beaufort, South Carolina

I am an amateur beekeeper with about 40 colonies of bees which give me a lot of pleasure and a small profit.

Last season gallberry bushes looked like they were going to bloom in early May. I decided to move my colonies to a location where there was plenty of range for them.

My friend Bernard Sawyer who keeps a few bees, said he would help me move them. I also asked a young negro to drive the one ton truck and help us. I had a trailer behind my car that carried eight colonies and we loaded 32 colonies on the truck.

We got underway for our trip of 35 miles with the truck following the car. We had driven about ten miles when I missed the lights of the truck. I turned around and found it about a mile behind. It had run down a ten foot bank, hit a culvert, and turned over.

My first concern was for the driver. I did not know whether he was hurt or where he was. Before I got to the truck he came running down the road. He said he went to sleep and the truck got away from him and he could not regain control of it. He was not hurt except where the bees had stung him.

It looked bad enough that night but next morning one could really see a mess. Hives were broken apart, and frames and bees all scattered in about a 40 foot radius.

The family that lived about 200 yards from the wreck could not leave their house and they had one cow and a calf tied out to a stake. I had to move them to keep them from breaking their necks.

There lay 32 extra strong hives of bees in a pile. With the aid of new hive bodies and other parts we started to gather up frames and set up new colonies. It was impossible to tell which was which so we just put about an equal amount of brood into each colony and set up 28 colonies out of the lot. We took frames of brood and gathered scattered bees onto them and shook them in front of the hives as one would swarms.

There were places on the ground where the bees were at least three inches thick.

My bees are reasonably gentle but a more vicious bunch you have never seen. We had no trouble from people stopping to ask questions—not even the traffic officer.

Mr. Sawyer had a fine bee suit that was good and large with zipper veil and he made out very well although he got a lot of stings. The one I wore was not bee tight and I really caught it. Bee stings do not swell on me but I was stung until I was sore and stiff.

We had to move them the next night and surprising as it may seem there were 22 colonies that had queens laying one week after that. I know of but one hive in which a queen was seen when we set them up.

It cost quite a sum of money to replace the truck besides time and bee supplies so that is an experience to remember, but I still keep bees.

Moral: Don't fall asleep while driving a truck load of bees.

Breeding Improved Honey Bees

By William C. Roberts and Otto Mackensen
U.S.D.A., Agr. Res. Adm., Bureau of Entomology and Plant Quarantine*

Otto Mackensen

William C. Roberts

Preface

Within recent years the technique of artificial insemination has been improved and used successfully in experiments on bee breeding. Thus a major barrier in our efforts to produce better breeds of bees has been successfully hurdled.

Readers of the bee journals now find advertisements telling them that improved hybrid bees are available. Since these are said to be superior to existing races or strains, the wide-awake beekeeper will want to know how they are produced.

This is the first of a series of articles on the use of controlled breeding to improve honey bees. This article discusses the relationship of bee breeding to animal breeding in general. Articles on heredity and variation, sex determination and bee breeding, inbred and hybrid bees, and production of hybrid queens, will follow.

I - Bee Breeding and Animal Breeding

Almost everything that we eat or wear is the product of our domesticated plants and animals. Most of these living forms have been cared for and propagated by man since long before the beginning of written history.

Domestication implies several things, no one of which is sufficient to define it completely. It usually means tameness; but individual bears, lions, or even snakes can be tamed, and few of us would call them domesticated animals. Domestication further implies bringing the growth and reproduction of the plant or animal at least partly under man's control, but certain pigeons and geese usually choose their own mates and accept no others. Man uses domesticated animals or their products for his own advantage, and he usually keeps them in or near his own dwelling. From the variable wild species man has, by selection and reproduction, developed individuals that suit his purpose.

Breeding and selection have therefore led to the establishment of types or varieties useful to man. Selection for usefulness and survival under man's care has frequently resulted in varieties incapable of survival without man's care. Man did not create these genetic forms. By controlled breeding and selection he merely succeeded in putting together or fixing these varieties from the genetic variability that existed in their wild ancestors.

The honey bee has a definite place in our modern world. Its products of honey and wax are useful to man, although perhaps not essen-

*In cooperation with the Wisconsin Agricultural Experiment Station and Louisiana State University.

tial to all men. However, the pollination activities of bees affect the lives of most of the people of the world. Although we may never succeed in taming the honey bee or in getting it to change its mating habits, it seems evident that the definition of domestication is sufficiently broad to include this most useful insect. The ways and means of improving the economic value of honey bees by controlling their growth and reproduction will be discussed in this article.

The breeder of animals must decide which animals shall produce the next generation. His choice is determined by his knowledge of the variability that exists in the potential breeding population and the usefulness that he desires in the succeeding generations. The variability in the breeding population is due in part to differences in inherited factors and also in part to differences in environment. A knowledge of the science of heredity should make it easier to choose intelligently among the many animals in the potential breeding population.

Because of the social nature of the honey bee, the colony is the unit upon which selection must be based for most economically important characteristics. The individuals of a colony consists of a queen and her worker and drone offspring. The queen is mated before she begins egg laying, and her mate is thus the father of the workers in the hive. She may have more than one mate, and therefore the genetic variability of the colony may be due to several individuals. Each of these individuals can be influenced by environmental factors that are not always easy to evaluate. The bee breeder's problems in properly evaluating the genetic and environmental factors affecting each individual colony are much more difficult than those of other animal or plant breeders.

Although honey bees have been propagated by man for 5000 years or more, there is little evidence that much progress in bee breeding has been made. No superior breeds of bees have been established. The species has been subdivided into races, and all these races show considerable variability. Apparently they are the product of many generations of random matings within populations that have been partially isolated by geographic barriers. Man may have had some influence in fixing these races by selection that altered the frequency of certain inherited factors.

The aim of the bee breeder is to produce better or more profitable bees. This may mean more honey per colony or it may mean more efficient pollinators. The breeder must work with the reproductive individuals that are available. Since colonies of bees differ in many characteristics, the breeder has variability from which to select. This variability may be due to both genetic and environmental factors. The successful bee breeder must observe his colonies closely so that he can make proper allowances for environmental factors affecting the genetic variability in his breeding stocks.

His next problem is to mate the breeding individuals so as to obtain genetic improvement. From the variable colonies he attempts to unite the genes (the genetic factors) for good qualities from many stocks into one line or breed while eliminating inferior or less desirable qualities. In order to succeed he must have some knowledge of the science of heredity. Geneticists have accomplished this with many plants and animals, and therefore it is possible with bees.

Since the honey bee is an animal, it would appear that animal breeding methods should be used. The honey bee, however, is quite different from other economically important animals. Its method of reproduction is in a sense more like some plants. We shall attempt to describe these differences and likenesses and show how they affect methods of bee breeding.

The science of heredity is relatively new, having only become recognized as a science in the 20th century. Yet a great amount of real progress through selective breeding was accomplished in most of our economically important plants and animals long before Mendel, the father of genetics, was born. Most every breed of horses, cattle, hogs, and chickens used in the United States today was established before the 20th century. Yet even today there are no fixed breeds of bees—we still have only races.

Let us review a few of the methods employed in the establishment of improved breeds of livestock. The fundamental biological principles of inheritance are the same whether we

are breeding plants or animals. Therefore, much about bee genetics can be learned by studying the genetics of other animals and plants.

All our domesticated animals, except the guinea and the turkey, originated and were domesticated in prehistoric times in the Old World. Most domestication evidently occurred in central or western Asia, although some is believed to have taken place in Europe, Egypt, India, and China. It is still disputed whether most animals descended from a single wild species or from two or more species.

Early naturalists supposed that species were fixed and had no genetic variability. However, modern geneticists have shown that wild populations of one species of animal were not genetically uniform. They have also shown that selected breeding within these wild populations, with their existing genetic variability, can produce distinctly contrasting races or breeds within a few generations.

It seems probable that all the races of bees, as we know them today, developed from a single wild species of honey bee. In time they became dispersed over a large part of the Old World and were somewhat isolated into many small groups. There was, of course, some interbreeding between groups, but geographical barriers prevented a great many matings between groups. As a result a certain amount of inbreeding took place within each geographic group. By mutations, natural selection, and perhaps some human intervention in selection, the bees within each geographic area became different from those in other areas.

The bees from the various areas are called races. Probably the most geographically isolated race of bees is the Caucasian. A Russian author who studied this race in its native home divided it into six separate varieties. These varieties ranged in color from the banded appearance of the Italian to completely black. Other genetic characteristics within this and other races of bees are equally variable. The bees of one race are fertile when crossed with those of another race.

Wild cattle, horses, and hogs were also variable animals. The recognized breeds of these animals were developed by selected breeding of outstanding individuals from variable populations. The history of the formation of the beef breeds of cattle that originated in the British Isles is typical of successful animal-breeding methods.

History tells us that migrating people and invading armies usually carried with them much livestock from their native lands. Migrations were slow, and the stocks mingled with and interbred with stocks present in the countries through which they passed. It is not known just how many and what kinds of cattle were introduced into the British Isles throughout the ages. However, it is known that the Norsemen and the Dutch carried cattle into the British Isles, and it is suspected that the Romans and the Normans also brought in some cattle. These cattle interbred with the cattle of the islands, and a great amount of genetic variability existed in these stocks before the formation of the breeds that we know today as Hereford, Shorthorn, and Aberdeen-Angus.

About the beginning of the 18th century the common lands of Great Britain were enclosed so that the intermingling of stocks on a wide scale was stopped. The cattle population was thus broken up into small groups and inbreeding within groups was the result. About this time the cities began to grow and a demand for meat developed. Some types of cattle were more useful for this purpose than others, and breeders attempted to produce these meat-type cattle. A few breeders gathered together some of the best animals of the desired type into one or a few herds. There followed years of rather intense inbreeding between these selected animals and their descendants. Very little outside breeding stock was permitted to enter these herds. After several generations the cattle within these herds were uniform and were distinct from the other animals in the community. Every recognized breed of cattle has arisen from the concentration of the genes (blood) of one or a few animals of greater than ordinary merit.

Breeds have developed in a similar manner among other types of livestock. The Poland China hog was evolved or originated in Butler and Warren Counties in southwestern Ohio. The exact combination of breeds or types that resulted in this hog is not clear. Prior to 1830 there

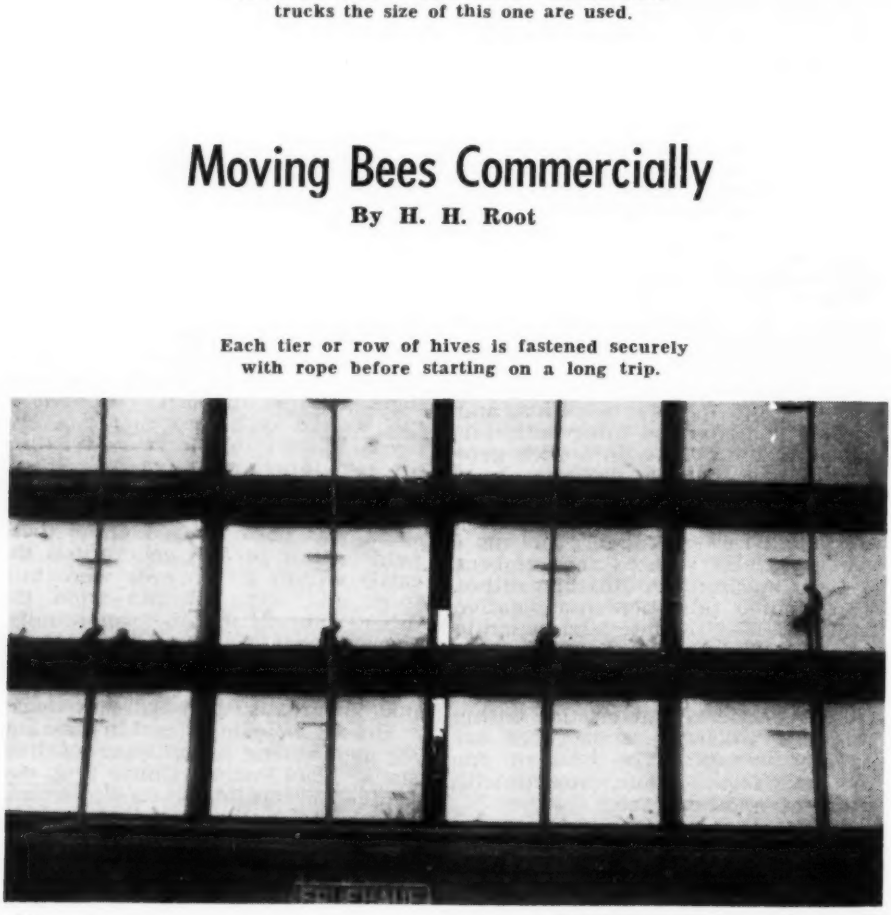
(Continued on page 377)

A lot of hives of bees can be moved when trucks the size of this one are used.

Moving Bees Commercially

By H. H. Root

Each tier or row of hives is fastened securely with rope before starting on a long trip.



At the National Meeting held in Omaha in October, 1940, ten years ago, a newly married couple was introduced, Mr. and Mrs. J. L. Lauritsen, Kennard, Nebraska. Their picture appeared in the April number of Gleanings for 1941. Mr. Lauritsen has been engaged in commercial beekeeping for a number of years. He is also interested in trucks and trailers and does considerable commercial hauling. It is his experience in hauling bees in which we are especially interested.

Few honey producers today recall the trials connected with moving bees in the old days. Horses or mules had to be used, and in case the bees were cross the loaded wagon sometimes had to be pulled out of the apiary by means of a long rope until it was safe to hitch to the wagon direct. The moves were necessarily short. The problem of comb breakage was a severe one, for without pneumatic tires the jolts had to be absorbed by a layer of hay under the hives. The number of colonies that could be moved in one load was limited so several wagons or drays were needed to move an apiary. The expense and the danger involved were so great that bees were moved only when a location had to be abandoned. Fortunate were those who had apiaries along a river and who could move the colonies by barge.

Mr. Lauritsen, both on truck and large trailer, moves his bees about with an ease that would have astonished the early movers. The capacity of these large trailers especially, sometimes equals that of a large box car on a railroad, and the smooth pavements and pneumatic tires combine to reduce comb breakage to a negligible amount.

It still costs money to move bees but the cost and danger are not what they were 50 years ago.

J. L. Lauritsen, Kennard, Nebraska.

This load of hives, while not as large as the load on the opposite page, still represents a lot of bees.

XUM

Section Comb Honey Production

The Double Brood Chamber Method Reduces Swarming

By Paul M. Raynes

Instructor in Agriculture, University of New Hampshire, Durham

How to produce section comb honey has been a problem to a great many beekeepers. It was to me until eight years ago when I fell into a system of working my bees whereby comb honey production was possible. Around here we have some definite problems affecting our bees which have guaged their ability to produce section comb honey. Climatic conditions, plus having good pastures, and colonies strong enough at the right time when the honey flow starts are some of the problems affecting us.

We have no control over the bee pastures in this vicinity but we do have control, to some extent, of the size of colonies at the time of the honey flow. This is one factor that I have tried to correct over a period of years. I used to believe that producing comb honey was 90 per cent luck, 9 per cent good weather conditions, and one per cent colony manipulation. For a number of years my bees failed miserably to produce comb honey. In the spring my apiary always consisted of a small number of weak colonies. By fall the number had increased but were of medium to poor swarms. Each year I tried to winter my bees but experienced quite a loss.

About eight years ago, I had a colony produce around 50 pounds of good comb honey. How did I do this? Let's go back over that season to see why this hive had produced comb honey for the first time. In the spring of that year, I had two weak colonies come through the winter. It meant carrying on the same procedure of trying to build up these hives, hoping they would be strong enough to store surplus honey from the fall honey flow, or, do something drastic in trying to get a strong hive early in the year. The latter was what I did that year and by using the newspaper method I combined these two weak colonies.

To my surprise this hive came along very fast and by the last of May looked as if it was ready for additional room. Instead of putting one super of section comb boxes on the hive, I put on two, thinking the bees might use the extra room eventually. At the end of the first honey flow, they had made 30 pounds of comb honey in the two supers. Since the bees had worked in both supers, I immediately took off the capped sections and combined the partly filled ones into one super. This along with a new empty one was placed back on the hive. The super with the partly filled combs was placed next to the second brood chamber. At the end of the season, they had made 20 more pounds, and I was established in the production of comb honey.

Since that year, my bees have produced comb honey every year, varying, of course, as to the season, but production has run from 25 to 100 pounds per colony. The colonies always go into the winter in strong condition with ample stores and to date I haven't lost a colony from winter killing. This is remarkable when thinking about the old days of losing as high as 60 per cent in one season.

Swarming is no longer a problem since using the double-brood-chamber system. The queen has ample room to lay in both chambers. I have seen a queen laying in 18 of the 20 combs, so know that it can be done. It certainly is a sight to see when comb after comb you pull out has either brood or eggs. In most of my hives, the bees usually replace their queen each year. In fact, my original hive that produced the comb honey for me eight years ago has become so ugly in the past couple of years that I am planning to requeen.

Another change that I have practiced over the past few years is to handle my bees as little as possible. I think that's one of the big faults of the beginning beekeeper. Under this two-brood-chamber system where the queen has ample room to lay, the swarming fever doesn't seem to exist and I am not worried about the bees building queen cells all the time. At the present time I give the hives a thorough examination in the spring at the time when the supers are ready to go on. This tells

me the condition of the hive at the time of the first honey flow. During the middle of the season, if the hive is not doing what it should in producing comb honey, another examination is made. In the fall the hive is tested by picking up one end to determine its weight. I have never found a hive since using this system that was low on stores in the fall.

For winter protection, I have used only the black building paper around each hive with the entrance boxed in, using three-eighths inch holes. There is a three-eighths inch hole in the front of the second brood chamber to allow moisture to escape during the winter. This hole is blocked during the rest of the year.

As we enter another season, I have already checked my bees and found that they came through the winter in excellent condition. If present weather conditions continue for the next couple of weeks, I will start putting supers on my hives and once again will be ready to produce section comb honey.

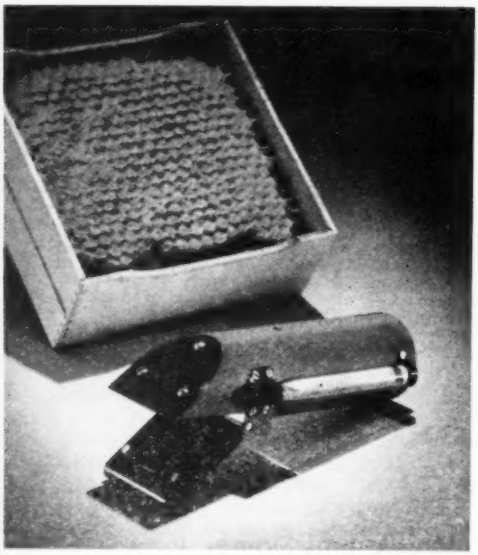
[Some advantages of the double brood chamber for comb honey brought out in this article are in line with our experiences. See also the last part of Talk to Beginners in this issue.—Ed.]

Hives Represent Aaron, Moses, and Simon.

In a Monastery in Poland there is an apiary which consists of a series of hives carved in wood. The figures (hives) represent characters from the Old Testament and from the New. The ones above are from the Old Testament: Aaron, Moses, and Simon. The other figures which are not here shown from the New Testament represent Holy Apostles, Bishop, Priest, Monk, and Nun. The entrance to the hives is in the front of the figures and in the back is the opening (inclosed by door) for taking the honey out.—Photo sent by Rev. A. Maksimik, Saint Mary's College, Orchard Lake, Michigan.

XUM

Equipment for Determining Moisture Content of Honey



By Dr. E. J. Dyce
Professor of Apiculture
Cornell University, Ithaca, N. Y.

New honey refractometer for determining the moisture content of honey.

Considerable progress during recent years has been made in equipment for determining the moisture content of honey. Prior to World War I, the moisture content was usually determined by the weight per gallon method. This method is time consuming, and special precautions must be taken to secure an accurate figure.

Until about 20 years ago it was commonly stated in the beekeeping literature that extracted honey should be well ripened and weigh not less than 12 pounds to the gallon. If the weight of the honey was taken at a temperature of 68 degrees F. this would indicate that a honey fit for sale should not contain more than 14.2 percent moisture. It appears that the weight per gallon method must not have been widely used otherwise it would have been discovered earlier that 12 pounds per gallon was too high a figure for a good average honey.

Following the First World War and the trend towards large packing organizations, other methods for determining moisture content were tried and used to some extent. For example Brix hydrometers were used in some of the central states, while Specific Gravity hydrometers appeared to be more popular in the eastern states. In Canada a large number of small Baume hydrometers, about five inches long and manufactured especially for honey, were imported from Germany and used extensively by packers and beekeepers. Since such a small hydrometer was not very accurate a number of large Baume hydrometers about 11 inches in length were manufactured and widely used.

While anyone of these instruments is capable of providing a fairly accurate reading, suitable honey tables were not available by which the readings could readily be calculated and compared. A reading taken by one instrument in an area would mean little to a buyer in another area who was not familiar with the instrument. Consequently there was a definite need for an accurate set of honey tables which would show the exact relationship between the various instruments and methods commonly used in determining the moisture content of honey.

Realizing the need for a standard set of honey tables, a beekeeping advisory committee in Canada (C. B. Gooderham, E. J. Dyce, and the late Morley Pettit) urged the National Research Council to commence work on this problem in its laboratories at Ottawa. The committee also recommended that work be started on a new or improved in-

strument which would give more accurate and rapid readings.

Dr. H. D. Chataway was employed by the National Research Council to do this work, and the results of her investigations have been far reaching. Her well known honey tables, including temperature correction factors, were first published in the Canadian Bee Journal in 1935. The tables were approved by the Association of Official Agricultural Chemists of this country in 1942 and are now used throughout the world. This organization publishes the well known manual (Methods of Analysis — A.O.A.C.) which is recognized by chemists in this and many other countries as the most authoritative information on agricultural chemical technique.

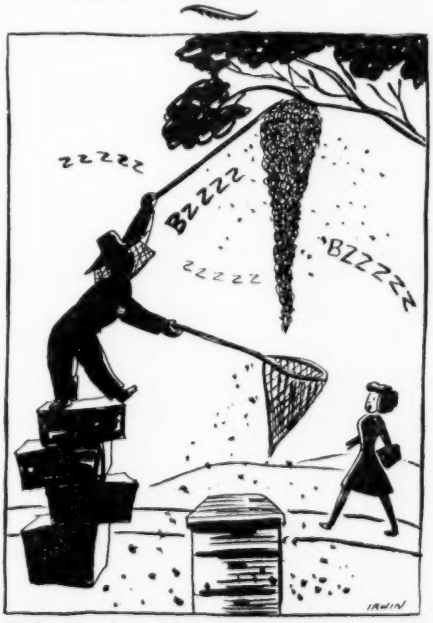
The specific gravity hydrometer for honey which she developed is economical, fairly accurate, and also widely used. A thermometer is installed in the hydrometer as a component part of it; this permits taking simultaneous specific gravity and temperature readings. Accompanying the instrument are directions and tables which facilitate making a rapid conversion of the specific gravity reading into terms of water content. The instrument is manufactured by the Central Scientific Company of Chicago, and the complete outfit is readily available at the cost of about $10.

Before the publication of her tables Dr. Chataway made a thorough investigation of refractometers. Though others did some work with them it was mainly through her investigations that the refractometer has become recognized as the most simple and accurate method of determining the moisture content of honey. The chief advantage of the refractometer is that it takes only a drop or two of honey, and a reading can be secured in two or three minutes.

Unfortunately refractometers have always been relatively costly and, like other scientific instruments, they have greatly increased in price during recent years. At the present time a large standard refractometer will cost about $650. Realizing that not many refractometers would be used in the honey industry at this price, the Cornell Apiculture Division urged the well known Bausch and Lomb Optical Company of Rochester, New York, to manufacture a small hand refractometer especially for honey. The instrument is now ready for distribution and was demonstrated by J. S. Starks, a representative of the company, at the annual meeting of the National Beekeepers' Federation which was recently held at Denver.

This honey refractometer will give a direct reading to 0.1 percent moisture for any honey that has a moisture content between 12.5 and 27.0 percent. A thermometer graduated in percent moisture is permanently attached to the side of the instrument which provides for rapid temperature corrections when the honey is above or below 20 degrees C. This instrument, based on the Chataway honey tables, now makes it unnecessary to refer to her tables. A few readings of the new hand refractometer were compared at this office with those of a large Abbe refractometer and found to be almost identical.

The instrument with case costs about $165. This is more expensive than was expected, but it is still much cheaper and simpler to operate than the large type of refractometer. This new honey refractometer will be of benefit to the honey industry and should enjoy wide use in this and other countries.



"Tell me honestly, Mr. Beebonnet, are you really crazy about your work?"

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Three-in-One

By Mrs. Benj. Nielsen
Aurora, Nebraska.

This three-in-one is a baking-day bargain.—Photo Courtesy Kellogg Co.

Keeping cooky dough on hand in the refrigerator is a time-saving shortcut employed by many cooks. A kind of insurance when unexpected guests drop in (oven-fresh refreshments in a twinkling) and fresh cookies on demand with a minimum of time and effort.

Honey yeast bread doughs fall in the same category. The honey dough may be refrigerated a week before baking, or, if you have a freezer you can mold the dough in desired shapes and freeze.

The deep rich golden brown crust is an outstanding characteristic of honey breads. The delightfully subtle flavor will make other breads seem flat in comparison. All honey breads remain fresh and moist and the flavor actually improves--if you can keep any on hand long enough to have a chance to improve.

After mixing this basic dough, place in a lightly greased bowl, cover with a clean cloth wrung out of cold water and tie down with a string. Punch down daily and recover. Use portions as desired and return unused dough to refrigerator.

When you can turn out three entirely different products from one batch of dough, it's a baking day bargain. And whether you bake one or three at a time, good baking to you!

Basic Honey Dough

Three-fourths cup shortening, ⅔ cup honey, 2 cups ready-to-eat bran, 2 teaspoons salt, 1½ cups boiling water, 2 eggs, well beaten, 2 cakes or packages yeast, ½ cup lukewarm water, and 6½ cups sifted flour.

Measure shortening, honey, bran, and salt into large mixing bowl; add boiling water, stirring until shortening is melted. Let stand until luke warm. Add one-half the flour and beat until smooth; add remaining flour, beat well. Place in greased bowl, brush with melted shortening. Cover and let stand in warm place until doubled in bulk; punch down. Dough is shaped, allowed to rise and baked at once according to directions below, or stored in refrigerator and baked as needed.

Honey Tea Ring

One-third yeast dough, 2 tablespoons melted butter, 1 7¼-ounce package dates, 1 tablespoon lemon juice, ½ cup water, and ⅓ cup honey.

Roll out dough about 18 inches long, 5½ inches wide, and ½ inch thick. Brush with melted butter and spread with cooled cooked date filling. Cook dates, water, honey, and lemon juice together over low heat until consistency of jam. Cool. Roll dough up like jelly roll and seal edges firmly. Place roll on greased cookie sheet, pressing the two ends together to form a circle. With scissors cut from outside edge toward center at one-inch intervals; turn each section slightly so cut edge is up. Let rise until double in bulk. Bake 25 to 30 minutes in a preheated oven, 375 degrees F.

Honey Fruit Loaf

Add one cup chopped dried fruit, prunes, raisins, currants, or apricots, and ½ cup nutmeats to one-third of the dough. Form into loaf. Place in greased pan and brush with melted shortening. Let rise until double in bulk. Bake 45 minutes in a moderately hot oven, 375 degrees.

Honey Caramel Rolls

One-third of the yeast dough, 4 tablespoons melted butter, one-third cup honey, and one-half cup broken nutmeats.

In each greased muffin cup, place a teaspoon of melted butter and two teaspoons honey. Form dough into balls and place in muffin pans. Brush with melted shortening; let rise until balls are doubled in bulk. Bake 15 minutes in a preheated oven, 425 degrees. Turn upside down to remove pans and sprinkle with the nutmeats. Yield: 12 rolls.

Second Glances

C.M. Isaacson

The food chamber hive is in most localities almost an essential. I say "almost" because bees can be kept and honey produced by many systems of management, but the double brood chamber certainly makes for much less work in apiary management. I believe it was Geo. Demuth, when he was Editor of Gleanings, who first popularized the term "food chamber". It is an apt name for the second brood-chamber's function most of the year—it is storehouse and automatic feeder in one. Mr. Kalthoff is surely correct in saying that often a colony's condition can be quite fairly gauged by tilting back this upper hive body and examining between its combs—and that queens will use both bodies as need be. The middle entrance for winter is good in most localities, and reversing brood chambers adds to the amount of brood and does sometimes check swarming. I might add that here a very large percentage of double brood chamber colonies automatically requeen themselves in the fall (page 265).

Swarming can be prevented to a large degree by Mr. Schaefer's practice of raising a young queen before the honey flow so each heads the colony in which she is raised (page 270). It does work, and his method is not a complicated one.

The experiments involving self-fertilization of queen bees may seem to have little relation to anything of practical value at first thought (page 273), but as Mr. Mackenson points out at the close of his article, it may aid much in establishing uniform breeding lines—and thus in fixing desirable characteristics.

"The fulfillment of a dream" might well be the title of the Rev. Johnson's descriptive account of the La Jolla, California, Lutheran Church and its construction. That Mr. and Mrs. Aeppler did bring to pass that dream of his father's is a tribute to their work and vision also. Incidentally, an account also appeared in the Evangelical Lutheran Church's official paper, "The Lutheran Herald".

There is no swarming problem, says Howard Rock (page 278). I am afraid he is a bit optimistic—as I must admit I have been all too often myself (until the bees would each time show me differently). Surely young queens — **good** young queens — and plenty of room given in time will go a long ways towards our objective in most seasons; but weather, types of honey flows, strains of bees — there are many factors that have a bearing also (to say nothing of the fact that it is impossible to always weed out all poor queens in time). And as for only poor beekeepers using the Demaree method — perhaps E. S. Miller could have a word to say.

Spring brings rhubarb — and rhubarb and honey are taste kinfolks. And that Honey Rhubarb Pineapple Cream! — recipes that sound as good as that should be accompanied by samples, Mrs. Nielsen (page 280)!

That colonies used for pollination rental are weakened — sometimes to the point where subsequent poor wintering results, is surely a factor to take into account when fixing a rental price. This editorial also mentions the chance of increased queen supersedure to add to other drawbacks (page 288).

Stimulation of heavy early brood rearing is not always desirable, as Chas. Mraz points out (page 294). If one kills off a good many colonies in the fall and wishes to divide again to make this loss up in the spring, pollen substitute feeding (with the accompanying use of extra amounts of honey) does have a purpose, but it is also true that a colony can be stimulated to strength too early. And Mr. Mraz, as to that thin honey in the combs before anything was in bloom, I have seen it in mid-winter where stores had granulated and were liquefied by the bees. It is possible that such was the case in your particular yard.

XUM

From the Field of Experience

Revolutionizing the Re-Use of 60-lb. Honey Cans

By F. A. Babcock, Fredonia, New York

As a honey producer and packer, I have been looking for a means of keeping 60 lb. honey cans from rusting. I have tried many experiments and finally ran onto a preparation called Anti-rust Oil. And where do you expect it is manufactured? Right in my own home town. As a packer, I have been using it and experimenting with it for the last three years. Feeling that it is such a vast improvement, I am taking this opportunity to tell you beekeepers and packers about this wonderful money-saving preparation.

I have applied this anti-rust oil by pouring a bit of it into a coffee can, saturating a small cloth, squeezing it out and applying to new 60 lb. cans. This preparation will dry on the cans and cannot be rubbed off. The cans can be stored anywhere and they will not rust. This will eliminate the discarding every year of thousands of honey cans because of excessive rust condition.

One gallon of the preparation will cover approximately 1,000 cans and can be applied by two men in one day.

You may even save your old, rusty cans, as long as the rust is not too deep. Take stainless steel sponges, which can be obtained at your nearest milk plant, use water, and scrub off the rust, wipe dry, and apply this anti-rust oil.

Many parties have heard that we are using this anti-rust and have written to us for information on it. You may obtain this anti-rust from Riel and Fuller, 209 Brigham Road, Dunkirk, N. Y.

When writing for anti-rust oil, state that you want to use it for honey cans.

A 125-Colony Apiary from Swarms

The colonies in these hives issued from the log hive pictured on opposite page.

J. O. Campbell, Aldie, Virginia, uses a novel method for building up an apiary. He now has 125 hives of bees in a one-half acre lot and

A honey sign erected at the entrance of Mr. Campbell's bee farm.

Section of a tree containing a swarm with hive on top of log.

he started from a log containing a swarm, hauled from the woods.

As you will see from the accompanying pictures, the section of a tree containing the swarm is mounted on a stand. About May 1 he puts a hive with frames and comb foundation on top of the log, so arranged that the bees in the log have access to the hive. When a swarm issues from the log the hive on top is removed and placed on a permanent stand in the apiary and the swarm, which usually clusters on a fruit tree nearby, is put into this hive. Mr. Campbell says that during a good honey season he gets two and perhaps three swarms from the log.

There is a fall flow in his locality so he usually takes off a super of honey from this log hive at the close of the season. The bees in the log have enough honey left for winter and early spring food.

Mr. Campbell gives the following bit of good advice: "For the good of our crops please don't cut any bee trees unless you cut them in time to give the bees a good home. If you treat your bees well they will treat you well."

Safe and Sane Swarm Capture

By Stanley Anderson, Monee, Illinois

The capture of a swarm of bees is not truly the safe and simple process which it so frequently is proclaimed to be. Although it is true that honey-laden bees in the early stages of the swarming operation are on their most gentle behavior, the physical hazards presented in recovering swarms from inaccessible locations are too often minimized in the excitement prevailing at the time.

The writer estimates that one-half of the swarms he has encountered have obligingly settled on a low tree-limb, on a fencepost, or on some

other solid object near the ground, or, as occurred in one instance this spring, right on the ground surface itself. The common procedure of "sacking" a swarm on a low limb by bringing up a burlap sack completely around the cluster and severing the branch, is not usually applicable to taking a swarm which has settled on a solid object. Most of the bees can be jarred from a fencepost location, but a large number will manage to evade capture.

Except for the case where an easily accessible swarm can be enclosed completely within a sack for transfer to the desired permanent location the use of a hive body filled with drawn combs is advisable. The presence of one frame containing eggs or young larvae insures the adoption of the hive-body as "home" for all bees that once enter, because the presence of the queen is then no longer vital. The use of foundation-filled frames reduces the attractiveness of the new home; however, in an emergency even an empty hive-body or a common box may be effectively employed. Fly-screening, tacked to cover the bottom of the hive body, completes the preparations.

In operation, the hive body with combs in position is placed directly beneath the cluster so that shaking or brushing will dump most of the bees on top of the combs. Many bees will accept the new home at once setting up the well-known fanning performance to attract their fellows. It is usually best at this time to slide on the inner cover leaving a gap of about an inch for the attractive fanning action to continue. From then on it only remains to render the original swarming site no longer available or suitable for the clustering of bees not in the new home. If the limb may not be removed one can prevent bees from settling thereupon by vigorously shaking the branch. A more solid swarming site, such as the eaves of a chickenhouse, may be made unsuitable for clustering by sweeping the bees away with a bushy tree-branch or brush. Bees not permitted to cluster will circle about until eventually "news" of the new home reaches all, due to the efforts of the fanning bees in the hive entrance. Brushing or shaking is seldom required for longer than 10 minutes.

The procedure described above is quite common for hiving easily accessible swarms. The adaptation of the method to less accessible swarms is not, however, as well known as the preservation of life and limb warrants. For capturing a cluster located on a high tree-limb or under the eaves of a tall house the hive body is in the same way placed directly beneath the cluster and on the ground. In case of the tree, an automobile tire tool, or some other handy suitable object, is tied to the end of a clothes line and hurled over the branch so that the branch may be shaken by pulling on the line. With a sudden shake the mass of bees will drop together as a stone falls, and if the hive has been located sufficiently precisely, at least 25 percent of the bees will land on the top bars of the frames. After the inner cover has been pushed partially on as in the previous case, a vigorous shaking of the high branch should be maintained for 10 to 15 minutes by pulling the clothes line. Although the air will be filled with circling bees and one despairs of bringing them all down to the new location, practically the whole swarm will be found to have become firmly established when shaking is finally discontinued.

In other cases the clothes line method will not be possible. Often, however, a tree-branch or a broom tied to a long pole may be employed to dislodge a cluster on such a location as the eaves of a tall house. After they have been dislodged, the bees may be swept away as they attempt to settle.

If necessary, the hive body may be transferred to its permanent stand at once. On the other hand, if one waits until evening, all the bees will be secured when the inner cover is slid on all the way. Since the bottom was screened beforehand, no risk of suffocation is taken in transit to the permanent stand.

A Correction in Who's Who in Apiculture

Kentucky has classes in beekeeping taught in the college of Agriculture. The professors in charge of beekeeping are Prof. W. A. Price and Dr. Lee H. Townsend, both of Lexington.

A Talk to Beginners

M. J. Deyell

A Trained Swarm

June is the month of swarms, especially in this latitude and a little farther north where the major honey flow starts this month.

Beekeepers, large and small, may have some calls during this month from those who have captured swarms or found them in branches of trees or shrubbery on their property. One should have a few hives equipped with combs to use in hiving such swarms in case those who find the swarms do not care for them. Some years ago, we received an urgent call from up town. A swarm of bees was in the air near some trees in the business area. I fixed up a hive containing combs and put in one comb containing some honey and brood in all stages, making sure the queen was not on the comb. This comb was put into the middle of the hive intended for the swarm. As I drove up to the swarm, the bees were preparing to cluster on a high branch of the tree. I placed the hive containing the combs and brood on the edge of the sidewalk almost directly below where the bees were flying around. In less than a minute most of the bees flew down around and under the lower portion of the tree. Then a strange thing happened,—many of the bees lighted on the sidewalk and marched around in military fashion, making a complete circle, then started for the hive entrance. After watching the queen go into the hive, I knew the bees would follow her. Many onlookers had gathered about to watch the proceedings, and to add a little drama to the occasion, I waved a magic wand over the bees as they marched into the hive. One fellow said, "Those bees know that man and will do just what he tells them". Some of the crowd assumed that I had some supernatural power over those bees. I never have had an experience like that before or since. I assume the bees with their sense of odor, detected the presence of honey and brood in the hive and took possession at once.

M. J. Deyell

Incidentally, a large swarm of bees put into a hive at the beginning of a major honey flow, will usually store a considerable amount of surplus honey the same season. The majority of beekeepers now attempt to control swarming but there are a few who let their bees swarm and count on these swarms to store most of the surplus honey they secure. Those who follow this method usually have the wings of their queens clipped so they cannot fly away with the swarms. The prime swarm that issues is put into an empty hive, placed on the stand from which it issues and the old parent hive, containing the brood, some bees, and queen cells, is moved to a new location. In due time a young laying queen will be found in the old hive. This colony, set aside, may not store much, if any, surplus that season but is likely to be a good colony the following season because it has a young queen. The swarm, with the old queen on the old stand, usually has to be requeened some time that season because this old queen is approaching the end of her usefulness.

Most beekeepers do not encourage swarming because they like to keep their colonies intact instead of dividing them, as happens when swarming occurs. However, when one wishes to increase the number of hives in his apiary, the swarming method may be used to advantage.

A very picturesque mountain apiary of W. H. Arthur, Wildwood Farm, Brevard, N. C. Photo taken in 1948 by W. A Stephen, Extension Apiarist for North Carolina.

Training Bees to Work in Supers

Dr. W. E. Dunham, Ohio State University, in a recent talk at the meeting of the Cook-DuPage County Beekeepers' Association in Chicago, said, among other things, that it is possible to do a certain amount of training of bees. This seems apparent from work done by Dr. Karl von Frisch recently. Dr. Dunham likes to put on extracting supers at least a week or so before the main honey flow starts in order that the bees may become accustomed to the supers and adopt them as a part of their home.

When bees occupy one or more supers, before or at the beginning of the major honey flow, this relieves the congestion in the brood chamber below. Furthermore, bees are more likely to begin storing surplus honey in these supers than would be the case if these supers were not put on until after the flow had begun.

Putting on all Supers at Once

Perhaps I should take with a grain of salt some of the stories told me by beekeepers but the two incidents I am about to relate come from reliable sources:

One commercial beekeeper in Michigan, at the beginning of an unusually good honey season, was short of help. He had one yard which he planned to devote to comb honey production. As the flow was about to start, he piled four comb honey supers on each hive that had been previously checked for strength, queens, etc., then left the yard to take up other work which needed his attention. At the close of the honey flow, he returned to this yard and found practically all of the supers jammed full. It is possible that he may have lost some swarms but he did cut down on labor which is the most expensive item in business today.

Another commercial beekeeper who lives in Ohio and operates over 300 hives of bees in northern Michigan, was unable to secure the necessary apiary help during 1950. He made a trip to northern Michigan during the latter part of April to see how the bees had come through the winter, to close up dead hives,

and do whatever needed to be done. He then made another trip in June to check the colonies prior to the main flow. Knowing that he would not visit the apiaries again until late July, he put on all the supers he had and hoped for the best.

When he visited the yards in late July, he found most of the supers filled. He told me that his bees stored more surplus per colony than most of the bees in that area. It is possible that a number of swarms left his yards to take up their abode in the woods near by.

Now I am not recommending this type of beekeeping. I still think that in order to secure the maximum crop of honey one must be on the job, to do the right thing at the right time and to keep a few steps ahead of the bees. What I am trying to say is that we may be "missing the boat" by not getting supers on hives in plenty of time. By that, I do not mean we should put supers on during cold spring weather. This would compel the bees to generate an extra amount of heat to maintain the correct temperature for brood rearing and that would be unfair to the bees and would reduce their vitality. I see no objection to putting on one, two, perhaps three, or as many supers as are required to hold the crop, the latter part of May in the clover region.

I should say, perhaps, that the extracting supers, put on early by the Michigan beekeeper, contained drawn combs. To put on supers containing frames with full sheets of foundation too early, before the honey flow actually starts, would probably result in some of the full sheets being chewed up by the bees. They usually make holes in the foundation alongside of the wires. When the bees patch up such combs, later on when the main flow starts, they usually fill in with drone cells instead of worker cells, and such combs are not suitable for brood chambers.

For the benefit of some beginners who may not have supers of drawn combs to put on during the spring months when honey is not being gathered rapidly and when colonies need more comb space, it is an advantage when supers with full sheets of foundation are put on before the main flow starts, to feed the colonies sugar syrup made of equal parts of sugar and water, until an abundance of nectar from natural sources is available. A slow feeding of syrup should prevent bees from gnawing holes in full sheets of foundation and should encourage bees to draw out the foundation.

We hear about wild buckwheat in California. Well, here it is near the apiary of A. E. Bethurum, Redlands, California.

Storing Supers at Out-Apiaries

In a previous talk I may have mentioned what I did last fall,—namely, instead of hauling the supers to the apiary house for storage during the winter months, after extracting the fall honey, as I usually do, I hauled them out to the apiaries, piling them up about five high on solid foundations, making them mouse-proof. It is necessary to have the covers of the supers weighted down with heavy bricks or stones so that strong winds cannot blow the piles over. This saves a great deal of work hauling supers to apiaries in the spring or early summer. On the other hand, the supers piled out of doors are exposed to more weather than they would be if stored inside. However, it seems the advantages of having the empty supers stored near the apiary more than offset the advantages of having them stored inside.

A few days ago, when checking through some populous colonies, I

(Continued on page 374)

XUM

Editorials

Winter Losses Heavier than Anticipated

The winter of 1950-'51 in most of the North was not considered an unusually hard winter on bees because they had an opportunity for cleansing flights periodically. As a matter of fact, an early check on colony conditions in March indicated a comparatively small winter loss.

However, the weather during April was unusually cold. Queens had brood rearing under way in March and were unable to continue egg laying normally in April, because of cold weather and a shortage of pollen. Those who fed pollen supplement or substitute were probably able to maintain colony population better than those who did not feed.

Populous colonies were able to survive the cold weather, while weak or under-strength colonies gradually dwindled and most of them passed out. Some purchased queenless packages to boost weak colonies. It is amazing what a queenless package of young bees will do to a weak colony of old bees with a good queen.

And so, the problem this year was "springing" bees rather than wintering them and such is the case most years.

Whether or not we will admit it winter and spring losses are usually due to faulty apiary management. Very populous colonies late in the fall—given an adequate supply of good stores and ample protection against the elements—will probably survive the winter and be ready to take advantage of honey flows during the season, while subnormal colonies in the fall usually fizzle out during the winter or spring.

* * * * *

Section Comb Honey Production

Most people know what comb honey is, for when honey is mentioned they think of honey in the comb. There are some who are skeptical about the purity of extracted honey, but the maiority of people say comb honey is "real" honey. There are a very few, however, who say comb honey is manufactured. The late A. I. Root offered $1000 to anyone who could successfully manufacture comb honey, but the offer was never taken up.

The average beginner in beekeeping would like to produce section comb honey. To do this would be comparatively simple if all one had to do was to put on supers with comb sections at the beginning of a honey flow, then take them off when filled and capped over. But there is more to it than that.

Any one with average beekeeping ability can produce extracted honey under favorable conditions, but more expert apiary management is required to produce section comb honey successfully. The tricks of the trade have to be acquired through study and experience but this technique can be acquired.

Obviously there must be a good honey flow, populous colonies with young queens, and intelligent apiary management for best results.

It would appear that more comb honey is needed than is produced at present. It finds a ready market, especially during the late summer and fall months. Section comb honey helps to sell more extracted honey. What is more beautiful and appetizing than a clean white section of honey in a dust-proof cellophane carton?

* * * * *

The Feeding of Bees

As long as bees have been kept in hives a great variety of bee feeders have been used for feeding sugar syrup.

Some years ago before the food-chamber idea was originated, it was common practice to feed colonies in single-story brood chambers thick sugar syrup (two parts granulated sugar to one part water) late in the fall following the cessation of brood rearing. This was good practice, because in areas where the bees stored an inferior quality of honey late in the fall, this thick warm sugar syrup stored in the combs would be used during the coldest part of the winter. This is still good practice, especially in areas where there is an abundance of late aster. If this honey is not properly ripened, it may cause dysentery

during the winter. However, one trouble is that in some instances the combs in the brood chamber are so completely filled with late-gathered honey that there is little comb space available for the storage of sugar syrup.

During single brood chamber days, it was customary to feed syrup in the spring to supplement natural stores until abundant nectar was available. As a matter of fact, a considerable amount of syrup is still fed in the spring. Some feed it periodically in small amounts; others feed a considerable amount at one time.

By referring to a reprint from the Rothamsted Report, as of 1946, by Dr. C. G. Butler of London, England, it was found from a series of comparative trials of methods of feeding bees in autumn, winter, and spring, and on colony development in the spring, carried on from 1939 to 1946 that there were no beneficial results from either winter or spring feeding if the colonies were provided with adequate stores of food in the autumn.

From this it would appear that so-called stimulative feeding of syrup calculated to encourage brood rearing and colony build-up is of no avail—if the colony has an abundance of natural stores—honey and pollen.

This finding simply emphasizes the importance of having a great abundance of stores of good quality honey and pollen in each brood chamber late in the fall. A colony well provided with stores is likely to be populous in bees.

It would seem that a large percentage of so-called winter losses of bees sustained in the North could be prevented if beekeepers would only see to it that each colony is adequately supplied with stores.

It may perhaps seem out of place to stress this matter at this season of the year but in apiary management during the major honey flow beekeepers should so operate colonies that each has an abundance of stores for winter.

* * * * *

Have the Platter Right Side Up We have learned from experience that when a honey flow comes—it usually creeps up on us and we may not be prepared for it. Beekeepers should follow the Boy Scout slogan—"Be Prepared," which means having all colonies up to maximum strength at the beginnig of the major honey flow and having on hand ample beekeeping equipment ready for use when needed.

Many tons of honey are lost each year because bees do not have comb space for storing a crop. Let's keep the platter right side up. This may be the year we have been waiting for.

* * * * *

Honey Production in 1950 It is interesting to note from a report of the U. S. Department of Agriculture, Washington, D. C., as of January 26, 1951, that honey production in 1950 totalled 233,013,000 pounds, which is 3 percent more than 1949, and 9 percent more than the 1944-48 average. The per-colony average for 1950 was 41 5 pounds as compared with 40.6 pounds in 1949 and an average of 38.1 pounds for 1944-48.

The state of Florida had an unusually large crop of honey during the past year, due mainly to the heavy and prolonged citrus flow. There was also a record crop in Texas. However, the late spring and cool rainy weather in New York and Pennsylvania resulted in low honey yields in those states.

The beeswax production in 1950 totalled 4,275,000 pounds, which is 3 percent more than 1949.

* * * * *

Weed Killers Several facts stand out rather prominently in the hundreds of reports that appear in agricultural papers regarding the various weed killers.

It is evident that much of the research has been done by the manufacturers of the chemicals. At least there is more interest in the promotion of weed killers among the manufacturers of the chemicals than there is by the experiment stations that are testing them. Some of the manufacturers' claims appear to be exorbitant.

So far, comparatively little attention has been paid to the all-important question of cultivation. Is the killing of weeds sufficient? Does not the soil need to be loosened anyway? More than one honest dirt farmer has pointed out that the soil needs to be broken up by cultivation

XUM

anyway—that it must not be allowed to pack down into a solid rock-like mass. No doubt, if the weeds were killed, the need of cultivation would not be as great in a loose soil as in a heavy clay soil. Surely, the amount of rainfall would have some bearing on the question also. One is tempted to ask the question whether the weeds are not providential after all, showing when the soil needs cultivation. The decaying weeds also help furnish humus. If so, an uncultivated heavy soil, containing no decaying vegetation, could not be expected to yield what a cultivated soil would yield supplied with considerable vegetable matter.

The all-important question from the beekeeper's standpoint is this: In the indiscriminate use of weed-killers, are the chemicals going to get onto other vegetation besides weeds, such as cover crops? More than one horticulturist as well as apiculturist has worried about the effect on the honey bees. If the bees are going to be killed off, how is the 85 percent of cross pollination to be brought about that bees ordinarily perform?

The beekeeper perhaps has little to fear from the intelligent application of weed killers. Wholesale or indiscriminate use of poisons may, in the long run, do more harm than good.

Gleanings makes no charges but does raise the question.

Why Keep Still Just Because We Have an Axe to Grind?

Many people pay more attention to the appearance of food than to its wholesomeness. True enough, we have been told over and over that one reason why whole wheat flour gets wormy more quickly than white flour is that whole wheat flour is more nourishing! So many articles by nutrition experts have extolled whole wheat flour that we are becoming more wary of white flour.

We are less conscious of the fact that brown rice is more wholesome than white, bleached rice. In consequence, the demand for brown rice is so light that it is hard to obtain. We must have it **look** nice.

And while we know in a vague sort of way that brown sugar is more healthful than the white, we excuse ourselves for not eating the brown by saying we do not like it as well. Our real reason is that we do not like its **appearance** as well, and so we eat white, highly refined, granulated sugar. We consume too much, too—most of us. But why should beekeepers be timid about denouncing this bad habit just because we have an axe to grind? Why cannot all producers of honey talk about honey with the same enthusiasm that beginners do? Most beginners boost honey so constantly that all their friends eat honey — perhaps in self defense!

Too much highly refined granulated sugar is bad for the health, bad for the teeth. Isn't it about time that we helped spread the good news that honey, maple sugar, brown sugar, etc., are more healthful sweets?

James Rorty, in the May 1, 1951 number of The Reporter, says:

> The consensus of medical and dental opinion is that for three decades we have been consuming about four times as much sugar as we should. All attempts to "balance" the American diet founder on this rock of fact. Our sugar consumption is the despair of the clinician, the scandal of the public-health worker, the obese ghost at the austere banquet of the nutritionist.
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> In 1945 two scientists named Schour and Massler reported that the relatively sugarless population of postwar Italy had from one-half to one-seventh as much tooth decay as the average for the United States and other sugar-saturated countries. During the war years the incidence of tooth decay among Norwegian school children dropped by about half. In general, primitive peoples like the Eskimos and many Polynesian tribes were relatively free from dental caries until they began eating the trader's sugar and white flour.
>
> There is, in fact, little disagreement among dentists about the cause of dental caries. The official view of the American Dental Association, as formulated by its Council on Dental Health, supports the refined-carbohydrate theory of causation, to wit, that "Dental caries is a disease of the calcified tissues of the teeth caused by acids resulting from the action of micro-organisms on carbohydrates".

Many do not know that some soft drinks are "loaded" with sugar. In some of these drinks the proportion is around ten percent. If we drink a lot of certain soft drinks we take on a lot of sugar even if we don't use it on the table or eat candy. A diabetic, told by his doctor not to eat candy, sugar, or starches, was drinking over a dozen bottles of soft drinks a day. He had a natural craving for sugar and besides he was thirsty. The soft drink satisfied him on both counts but it was slowly killing him—until the doctor found what he was doing.

"Eat thou honey because it is good."

From North, East, West, and South

SOUTHERN CALIFORNIA, May 2

When we removed the wrapper from our last copy of Gleanings and saw the cover picture of the boy and the bees, we could not keep from wondering just how many of us have some children or grandchildren to take up where we leave off.

Weather: Yes, we have had weather and lots of it. Rain—yes, we have had some rain over most of Southern California, with some snow in the higher mountains. The rain was uneven in its distribution—some localities receiving as much as two or three inches while a few miles away, they had only a good sprinkle. It all helps a little toward the growth of plants. Of course, as the old saying goes, "It is never too late" but our chances for rain after May first are not very encouraging. However, the weather man said that we may have showers tonight and tomorrow.

Condition of Bees: Bees in general seem to be in very good condition and ready to gather their share of the orange honey.

Condition of Plants: Most of the unirrigated plants are showing some signs of growth since the last inch or two of rain. There may still be a chance of a light flow of nectar from the sages. Deciduous trees, such as the fig and peach, are in full leaf. Cherry trees are in bloom and furnishing pollen. The grasses and wild flowers have taken a new lease on life with a little rain and the country side should soon blossom like the rose.

Miscellaneous: Bees by the thousands, yes, tens of thousands of colonies have been moved to or near the orange groves. Looking at the orange trees now with their green leaves, golden fruit, and blossoms so thick that it looks as if no more could be put on, it is a very beautiful sight. The bees are doing all they can and are getting some honey. To try to say how much they will get would be folly as so much depends on the weather during the orange blossoming time. Some nights are very cool. Some days are cool and some are cloudy with a chilly wind. The bees are out in full force whenever the weather permits. A few colonies were moved to the oranges in one story but by far the greater number were moved in two stories. This second story contained frames of honey and some brood and bees. With weather conditions favorable these two-story colonies should be able to gather a fair amount of honey.—L. L. Andrews, Corona, California.

NORTHERN CALIFORNIA, May 1

Weather: All kinds of it during the past month, from hot and dry to cold, wet, and windy. Farmers are irrigating their grain, a sure evidence of the lack of soil moisture. Only 0.74 of an inch of rain fell during the month of April, which brought the total to 14.58 for the season, 1.42 inches below normal. Rain fell on the 25th, 28th, and some on the 30th. Heavy snows fell in some of the mountains down to the 4000-foot level, heavy enough to maroon fishing parties over the weekend. The snow pack is light to nil and irrigation water from natural sources may be short. Holding reservoirs are urgently needed to prevent floods during the rainy season and to hold back sufficient water to feed the hungry acres in the valleys during the heat of summer. The lack of moisture in the soil may mean an early end to what looked like a good honey year a few months ago.

Condition of Colonies: Many colonies have been living on a daily basis for some time, while others have starved. Those left with a heavy super of honey have built up and swarmed, unless swarm preventive measures were practiced. Some package bee men, who operated their colonies for pollination services last summer found that their colonies did not build up sufficiently to produce the average

number of pounds of bees normally expected. This deficiency, if continued, should be added to the cost of the pollination service. The trouble apparently lies in either a shortage of pollen for early spring brood rearing, weakened colonies by the close of the pollination period, or the after effects of poisoning. Some increase has been made to take care of increased pollination demands, not only in California but also in Oregon.

A number of dead bees were found under honey locust trees in bloom, indicating that the bees were being affected by a toxic condition of either the nectar or pollen of this plant. This is the third time I have had this situation brought to my attention or have seen it during the past 20 years in California.

Pollination Contracts: A number of meetings have been held during the past month to discuss the use of bees in legume seed production and the terms of a suitable contract have come up for considerable discussion. It is obvious that no set form of contract can be written for every area because of the potential yields of the different fields but one fundamental consideration applies to all beekeepers, and that is, that the beekeeper should receive from his pollination services at least the equivalent of the amount he would receive from honey production, plus the costs of extra labor involved in moving and the extra risk of poisoning through the concentration of so many colonies in one place. When three or four thousand colonies are concentrated in an area normally occupied by 300 colonies, there is no surplus nectar or pollen for any of the colonies. Some of the colonies may have to be fed during the pollination period and, in general, all colonies should be given a period of three or four weeks at the end to build up in places more favorable for nectar and pollen.

A minimum contract for alfalfa seed production in California would seem fair if based on a down payment of $3.50 per colony and one cent a pound per colony per acre of cleaned seed above an average production of 350 pounds per acre. With an average production of 600 pounds of seed per acre—and the average in northern California is more nearly 400 pounds per acre—this would mean a rental of $6.00 per colony. An incentive contract, in which the beekeeper will profit by increased seed production, would seem to be of greater mutual benefit to both the seed grower and beekeeper than a straight cash rental per colony. The contract should call for a minimum standard strength of each colony to be provided as well as some insurance to the beekeeper against the hazards of poisoning.

Marketing: A report just received indicates that a master list of beekeepers to furnish the needed data on production during the past year has been completed and circularized, with the dead line for the reports set for today. So, by the time this account gets into print, the call for the first of probably two public hearings on the California Honey Marketing Order will have gone out to the beekeepers of the state. Thus far the reaction to the self-help program for the honey industry has been favorable, with interest in the program increasing as its purpose is understood.

No change has occurred in the local market price of honey, following the slight increase in support price and none can be expected for some weeks. Most of the honey from last year's production has been moved by the producer, only an occasional lot still being held for more favorable prices. Honey prices in northern California are below those in the southern part of the state. Once a price pattern has been set by competitive methods, it is difficult, and slow, to effect a change unless there is some understanding between the various larger processors who sell in the same market.

Miscellaneous: A majority of the packages of bees produced in California this year will be moved to their customers via truck shipments. This practice has been developing during the past several years and was brought about by the increase in express rates without a corresponding increase in honey prices. These trucks should be equipped to protect the bees from cold as well as from heat during the time they are on the road. A recent trip encountered a strong head wind during a snow storm for 150 miles. Some queens and packages were lost due to inadequate protection from the 22 F. temperature. Other queens might have been injured.

When more than one queen is included in a package, both or all queens should be hung securely on the **same side** of the feeder can. Movement of packages by chartered plane is being considered by one company for next year. This will require much detailed work on both ends of the line and well in advance of the shipping dates. Packages could be delivered over night from California to hard surfaced airports anywhere in Canada.—J. E. Eckert, University of California at Davis.

TEXAS, April 30

Weather: The temperature for most of Texas was below normal. In spite of unseasonable high temperature on some days, the nights were rather cool and the soil warmed up rather slowly. High winds prevailed on most days which dried out soil moisture. Rainfall continues to be a critical weather factor, limited to light showers over widely scattered areas with the amount well below normal.

Bees and Plants: Although there was a scarcity of the usual ground flowers, bees have built up quite well in most areas, thanks to the blooms of trees, shrubs, and vines. Pollen is being gathered in abundance and normal colonies have reached their peak of bee population. Light colonies are now building up rapidly. Strong colonies are much inclined to swarming and there has been much supersedure of queens. Throughout East Texas there was an intermittent flow from youpon although many trees failed to bloom. Colonies made some gains and are drawing foundation. A good flow was reported from huckleberry wherever these trees abound. Rattan is beginning to bloom. Conditions have been unfavorable for horsemint in most of its range, being sorely in need of rainfall. In the Lower Rio Grande Valley where frost damage during the early season brought on discouraging conditions, various wild flowers have since improved, colonies have built up quite well and are now ready for migration north. Most colonies will be moved out of the valley before the cotton bloom in which fields disastrous losses from insecticidal poisoning were suffered last year. In Southwest Texas conditions were generally unfavorable; however, at this time there is an excellent bloom of mesquite over most of its range with good prospect for a honey crop from this source. In the blackland area of Central Texas where rainfall occurred, madrid clover is beginning to bloom and although Hubam clover is late, the bloom is expected to follow madrid. In the western portion of the vetch area, the crop is uncertain, however, in Kaufman and adjoining counties, vetch is in good condition and several thousand colonies will soon be moved to that area. In most of north and northwest Texas, there has been little rainfall since the winter ice storm and crop conditions are unfavorable and farm operations delayed.

Miscellaneous: Considerable difficulties were experienced in queen-rearing operations during the early season as a result of high winds and other adverse weather conditions. Package bee shipments have been well below normal although a considerable volume is moving by truck. Advertisements of package bees show a greater price range than in many years. Through East Texas crimson clover is becoming an increasingly important crop. On May 1st the annual crimson clover festival will be held at Nacogdoches. Crimson and white clovers are well adapted to that area, grown in large acreage and bees are in demand for pollination.—A. H. Alex, College Station, Texas.

WYOMING, May 4

Weather: The winter of '50-'51 lost its grip when the temperature reached 77 degrees according to the Sheridan Weather Bureau about a week ago. On the whole it was the mildest winter for some years. Snowfall in the valleys and lower regions was below normal but in the mountains ample to insure the summer's supply of irrigation water. We had only a few days of zero weather and in checking radio weather reports we frequently were

warmer than points considerably to the South. When that big snow hit Atlanta, Ga. and much of the South, the ground here was bare with temperatures in the 40's.

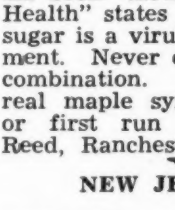
Condition of Plants: Owing to much of the alfalfa being plowed up for $2.00 wheat and new pasture mixes being sown that are not nectar bearing, bee pasture continues to be short in acreage but what there is looks good and the country is greening up fast though the rainfall for April was only 1.02 inches. Dandelions are commencing to bloom and should be far enough along in another week for the spring build-up barring late snow.

Bees: Colonies have wintered well, are in good strength, and have been gathering pollen from pussy willows and box elder. Winter losses were negligible.

Honey Market: Honey has moved well locally in spite of synthetic syrups selling at half the price of Nature's sweet. When prices commenced to sag a bit one of our enterprising beekeepers called attention to one of the largest stores that they were not making much on honey to which he readily agreed. A price of 93 cents per 5 pound pail was tentatively agreed upon and after seeing several other dealers that figure was made unanimous. Quite a bit more sensible than trying to come down to an impossible price for these inflationary times. With beef selling at 30 cents per pound live weight, and beef steak $1.00 per pound over the block, the talk of a roll-back in price of meat of a few cents per pound has caused a cry of distress from cattlemen who are getting $300 per head and better. Honey which has more energy value per pound than beef should sell at least at the above-mentioned price which is one fifth the price of many cuts of meat. I'm glad I'm a vegetarian. High priced beef doesn't worry me at all. One good way to stop cut-throat retail prices on honey is to shut off the supply to those dealers who want to make a football of honey by selling it at cost or thereabouts. Storekeepers naturally don't like to handle any commodity without being able to take a fair mark up in order to exist.

Miscellaneous: We have long known that white sugar is a source of fermentation and taxes the digestion, but P. L. Clark, M. D., in his book "How to Live and Eat for Health" states it strongly: "Refined sugar is a virulent acid making ferment. Never eat it in any form or combination. Instead use honey, real maple syrup, sorghum syrup, or first run molasses."—Earl C. Reed, Ranchester, Wyoming.

NEW JERSEY, May 4



Weather: From the New Jersey beekeepers' standpoint, the least said about the weather, the better. While the winter temperatures were not unusually low, still bees did not come through in good condition, particularly in the northern part of the state.

The winter loss for the state as a whole was around 20 percent. However, in those parts of the state where there was a heavy infestation of tulip tree scale the loss was heavy, as much as 68 percent in one rather large apiary.

Apparently some of the exudation of this scale was stored and used by adult bees in winter causing dysentery. Also there is evidence that adult bees, sick ones, crawled away from the hive as there were not as many dead bees on the bottom boards, where all the bees perished, as one would normally expect.

The spring weather has been quite unfavorable for bee development. Temperatures have been low and cold winds high. Bees were able to do practically nothing on maple blossoms over much of the state.

Condition of Bees: As a result of the serious bee loss, particularly in the northern part of the state, many colonies which came through alive are still weak. This condition is further aggravated by lack of fresh pollen and nectar to act as a stimulant.

Plant Condition: While ground moisture is a large factor in the promise of a honey crop in some states, this is an unimportant factor in New Jersey since the major part of a honey crop is from uncultivated plants.

At one time a dairying neighborhood was good for a honey crop

from clovers. Modern dairying practices here do not allow clovers to bloom to any extent.

Buckwheat, at one time, was good for at least one super of comb honey even under quite ordinary management. Now, however, there is no important amount of buckwheat grown. In fact, there is but one cultivated crop now grown which is of value as a honey producer, and that is lima beans grown for processing, and they are in a quite limited part of the state.

The demand for bees as pollinators of apples, blueberries, and cranberries continues and thus business provides a revenue for many beekeepers even though the honey crop fails to materialize. Unfortunately, some are renting colonies at a price which does not pay for labor and transportation.

Market: The movement of honey is about normal for this season of the year. The price runs around 30 cents a pound jar.—Elmer G. Carr, Pennington, New Jersey.

WASHINGTON, May 4

Weather: The past winter was rather hard on bees in western Washington, winter loss being heavier than usual. On the 4th of March we had the beginning of the heaviest snowfall of the season which lasted for some ten days. April broke an all-time record for rainless days and sunshine. It was more like July weather during day time, and the nights were very cold and frosty. The freezing nights got most of the fruit, especially cherries and pears. Our County Agent reports heavy damage also to cane fruits and strawberries. The dry weather gave farmers a chance to get work done in April that ordinarily is done in May. Our State also had more forest fires in April, as well as all of last year. Our neighboring state, Oregon, also had one of its worst forest blazes in many years.

Colonies have gotten very strong during the past month and those under poor management are swarming at present. I talked with some beekeepers in our county who got 30 to 40 pounds from the maple which has a very good flavor but is a dark amber. The crop outlook for the season is very good for an excellent fireweed flow this summer, which has not been too good for the past several years.

Price conditions vary depending on whose honey one buys, the retail price being from 85 cents per five pound pail to 59 cents for a two-pound jar. Consumer demand is slow and has been for some time in this particular district. Comb honey is retailing at from 39 cents to 42 cents per section, and is moving much faster than extracted.

Miscellaneous: Some two years ago a number of beekeepers in this county got together and formed a county-wide pollination service. It seems the farmer has gotten more pollination minded as this writer has numerous calls for bees to pollinate various crops.

On account of too much personal business the writer had to get another leader for the Cowlitz County 4-H Bee Club which was organized some three years ago. Al Michaels of Rt. No. 1, Kelso, Wash., is the new leader and I am sure is very capable and can do a good job, and will, if the 14 boys and girls will work with him.

While we are finishing this article we are getting our first real rain since April 1st.—Walter Evans, Longview, Washington.

MISSISSIPPI, May 5

Weather: Spring has been late and there were several heavy frosts in April. The first half of March was fair and warm and package producers pulled their colonies heavily to build their queen nuclei. About the middle of March cold, rainy weather set in and continued almost to the end of April. In consequence, many yards of bees that had been pulled heavily have not recovered. Rain kept bees from working more than half the time. The weather is now warm and favorable.

Honey Plants: White clover began blooming about April 10 and crimson clover and hairy vetch are in full bloom at this time. There is little difference between the northern and the southern parts of this state although there would ordinarily be two or three weeks. Meadows that have not been too

heavily grazed are blooming profusely now. Bees at State College were handicapped for weeks by the rain and cold, but with good weather are now bringing in the nectar. Several colonies on scales have averaged about 10 pounds daily gain per colony for the past week.

Package Bees, Bees for Pollination: Package bee producers began shipping some bees by April 16. Those who have fed plenty of sugar syrup have some very good colonies to pull from. Those who depended on nectar sources for the build-up have no bees to pull and will not have for several weeks. Most shipments will be considerably delayed. Shippers are turning down some large orders because they cannot hope to fill them. The demand for bees for pollination is far in excess of the number of colonies available. A symposium on pollination problems has been scheduled during the annual meeting of the Mississippi Beekeepers' Association at State College July 18, with county agents, seed producers and beekeepers participating.—Clay Lyle, State College, Mississippi.

ONTARIO, May 6

Weather: After several false starts it does seem that spring is really here. After a month of alternating cold and mild weather in March, April came in sunny and warm. Soft maple trees were noticed in bloom on April 7th, and the bees commenced gathering pollen. On the 9th the sky became overcast and for three solid weeks following that date my diary entries read, overcast and cool; overcast, light rain; overcast, heavy rain, until it seemed as day succeeded day that the sun would never shine again. Then one morning the sun rose in a clear sky, and that day I noticed the swallows had arrived, heralding warmer weather, and flocks of wild geese passed over on their northward migration. Since that time the weather has been bright with cool nights. Willows and many trees have been covered with bloom and the bees are really making up for lost time. Starved for pollen during those dull cool days, they are now packing all available comb space with it, and brood rearing, heavily curtailed, is now in full swing once more.

Condition of Bees: From what I can gather the general condition of bees is good. A few beekeepers report some loss from starvation. This can be traced to some very mild weather during the winter which induced early brood rearing with consequent rapid consumption of stores. Unfortunately in these cases it is usually the strongest colonies that starve. If the weather continues favorable and with dandelions coming in bloom in the next week or ten days, colony build-up will continue steadily until the beginning of the main honey flow.

Prospects: What the prospects are for the 1951 crop is anybody's guess. Some beekeepers attempt to make forecasts on the basis of various signs and conditions. This spring, according to accepted theories, should not have been a good season for production of maple syrup. Yet the quantity and quality of this season's production of syrup is considerably above the average. And some beekeepers say that a good syrup year is usually a good honey year. It is also noticeable this spring that the bees are gathering more than the usual amount of honey from minor sources. Could that be a preview of a heavy yield during the main honey flow in June and July? Others fall back on the law of averages. According to that rather indefinite statute, we are due for a big crop in 1951. Others just hope. Possibly the best plan is to make plans to handle a good crop, then just wait and see.

Miscellaneous: A few years ago a big crop of honey was the cause of more than a little anxiety. It meant surpluses and depressed prices. Previous to the war, the British and European markets absorbed our surplus. But since 1939 Canada has exported practically no honey. Today it is probable that our domestic market could absorb the biggest crop of honey we can produce. More attention to grading, with consequent improvement in quality, more attractive packaging, rapidly increasing population, and the advertising effort and program of the Canadian Beekeepers' Council have combined to increase the consumption of honey

substantially. If Canadian consumption reaches five pounds per capita, we may become an importing rather than an exporting nation. With that prospect in view all that remains necessary to make a happy company of beekeepers is an increase in price to give us an income comparable to that received by other sections of the community.—Allan T. Brown, Peterborough, Ontario.

MINNESOTA, May 9

Weather: We had a long-drawn-out and cold winter, with lots of snow but very little frost in the ground. March **was the** month of very deep snow, many hives completely covered over for weeks. Where moisture from melting snow seeped in considerable damage was done. Yards where the packing seams were sealed with hot asphalt did not permit seepage and so came through all right. Frequently colonies alive in February are dead in April, not having enough reserve strength to withstand winter's last month.

The new Minnesota Apiary Law passed the Legislature precisely as published in the April issue of The Minnesota Beekeeper. It is in many respects similar to the old law but in revised form. New amendments deal particularly with abandoned apiaries. It is pointed out that dairy and food inspectors have the legal right to handle cases of contaminated imported honeys. No one knows how much disease is scattered throughout Minnesota by honey containers in thousands of dumps. I do know that the region around my own local city dump has been an infected area for the last 20 years. It does seem too bad if the beekeepers in the leading honey production State of the Nation cannot be effectively safeguarded against this source of infection.

Reports of winter losses run all the way up to 50 percent. Most apiaries have less than 10 percent winter loss. Because of the prolonged cold spell cellar colonies developed dysentery, with losses up to 40 percent. Colonies are building up fast now. Honey plants came through the winter in good condition.

Miscellaneous: Beekeepers mourn the death of Representative C. S. McReynolds, of Clearbrook, who passed away in his Texas yards on March 31st. His son Stanley will continue the operation of the large apiary holdings.

State Apiarist, C. D. Floyd, improves with passing time. He is able now to lift a shallow super and says he is 75 percent recovered.

There seems to be a very good clean-up of last year's honey. Beekeepers had to sell their honey certainly without any appreciable profit. The support floor of 10c remains well below production costs, and very little bulk honey sold over that figure.

An outgrowth of the Denver meeting is the "500 Club" of the A.B.F. In Minnesota there are a number of eligible beekeepers having over 500 colonies each. And there are a lot of us with 100 to 500 colonies, together producing many carloads of honey. Why shouldn't we write to Glenn Jones, Atlantic, Iowa, sending in our four cents per colony and asking to join the "Under 500 Club"? Our business needs the support of a united effort behind the Federation aims. — Bruce Morehouse, Montevideo, Minnesota.

"But have you advertised your honey for sale?"

Asked & Answered

Getting Rid of the Moth

Question: Wax moths attack combs not in use on hives of bees. How can I combat this pest?—Arthur Payne, Del.

Answer: In order to prevent trouble from the wax moths in hives occupied by bees, it is necessary to keep strong colonies in modern hives, and supplied with good prolific queens. Populous colonies will repel wax moths. All supers of combs stored in the honey house should be piled and covered carefully, so that no moth may gain access. If, however, the combs contain eggs from the wax moth when taken from the hive, the wax worms will develop later on. If moths should appear in stored material, and yet the combs are not badly affected, they may be given to strong Italian colonies to clean up. If the condition is more serious, the combs should be fumigated. In this case, place at the top of the pile, in an empty super, a pan containing carbon bisulphide and leave tightly covered until the next day. The fumes, when mixed with air, are highly inflammable, and the fumigation should therefore be done outdoors away from buildings. At 70 degrees Fahrenheit, 10 cubic feet of space requires about two ounces of carbon bisulphide for complete saturation. This kills everything except the eggs. In about 12 days, when the eggs hatch, another fumigation will be necessary. In estimating the amount of bisulphide needed, it should be remembered that the empty combs occupy a part of the super space, and, if filled with honey, they probably take up as much as two-thirds of the space.

Fertile and Unfertile Eggs

Question: Does a queen lay a drone egg and then the bees enlarge the cell to a drone cell or is it vice versa? You always advocate removing combs with a lot of drone cells from the brood chamber. Is it the tendency for a good queen, one that does not lay many drone eggs, to fill these cells with drone eggs?—A. Oehling, Ohio.

Answer: A laying queen lays two kinds of eggs—fertile and unfertile. The fertile eggs produce worker bees and the unfertile eggs produce drones. These unfertile eggs are laid in drone cells which are approximately one quarter inch in diameter and fertile eggs are laid in worker cells which are approximately one fifth inch in diameter.

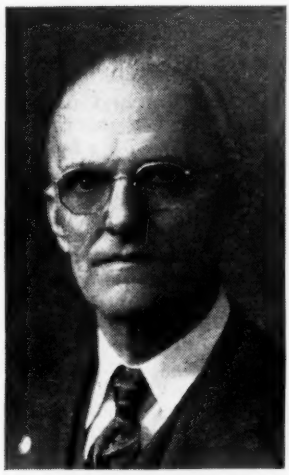
It is normal for a brood chamber to contain a little drone comb. Even the best of queens will lay some unfertile eggs, once in a while, to produce drones which are needed to mate with virgin queens during the height of the season. However, too many drones are a nuisance and uncalled for. That is the reason we advocate using good combs in brood chambers—combs that consist mainly of worker cells.

How Are Beekeepers to Keep Going?

Question: I should like to know how small beekeepers with, say, 25 to 30 hives, are going to stay in business paying the prices we pay for equipment and getting 12 to 18 cents for our honey. As for pollination of farm crops the farmers around here think a beekeeper should pay them for a bee yard instead of their paying us. I have talked to a large number of beekeepers and a lot of them are going to throw in the towel for they are operating at a loss. It is not because the honey is of poor quality for it is as fine a honey as I have ever tasted or seen.—W. R. Jones, Illinois.

Answer: Beekeepers, large and small, do have a problem these days to make even a narrow margin of profit. As a matter of fact, some beekeepers have lost money within the past few years. One reason for this is that honey crops have not been sufficiently large for beekeepers to make a margin of profit. Several years ago one of our government men made a survey of operating costs among beekeepers throughout the country and he came to the conclusion that the commercial honey producer must secure at least 90 pounds per colony average to make a reasonable margin of profit. Here in Ohio the per-colony average the past few years has been less than 50 pounds. Last year some beekeepers were getting around 100 pounds. We happen to know that some beekeepers in Illinois did do very well last year. We are of the opinion that backlot beekeepers could get a reasonable price for their honey — a price that would permit them a reasonable margin — if they would advertise their honey locally and put out properly processed honey in attractive containers with nice, neat labels.

FRANK C. PELLETT



Frank C. Pellett

As it must come to all of us, death came on April 28 at Atlantic, Iowa, to Frank Chapman Pellett, oldest member on the editorial staff of the American Bee Journal. He would have been 72 on next July 12. Mr. Pellett had been in failing health for a year, much of which time he spent in hospitals in Council Bluffs and Atlantic. But he was happy to spend his last few months in his "Bughouse", a small residence on his farm two miles from Atlantic and just a few yards from the residence of his son Melvin and family who now own and run the farm.

It comes to few to have had such an interesting and outstanding a career as Mr. Pellett had. Starting first as a full-fledged lawyer in Missouri he soon determined he was going to do what he wanted to do in his life and what he was fitted for. So he devoted his life to investigations and writings on nature subjects and particularly to the honey plant field. He wrote many articles for various magazines including the Country Gentlemen and was the author of 13 books among which is his monumental work on "American Honey Plants."

Mr. Pellett traveled as field editor for the American Bee Journal throughout the United States and into Canada and Mexico, gathering information and data and giving lectures. His influence and his encouragement had had a lot to do with popularizing many of the legumes and his writings no doubt were the fore-runner of the present interest of the necessity of honey bees in the pollination of more than 50 of our vegetables, fruits, and farm legumes and flowers for better fruit and weed set.

It is natural that such an authority should be recognized widely for his deeds. After spending much time with the Sioux Indians they made him a member of the tribe with the name "Ik-Toma-Tonka" (big spider). His name appears in "Who's Who in America" and in "Who's Who in English Literature". Honorary member of the Apis club of England and of the Bee Kingdom League of Egypt; he was also honorary of the Rotary Club of Atlantic and of the Kiwanis Club of Hamilton and of Tri Beta of Carthage College. In 1947 he got the Skelly Award for Superior Achievement in Agriculture as well as the award of the National Council of State Garden Clubs; and was Fellow of the American Academy of Science.

His wife Ada survives as well as 15 grandchildren and his daughter Mrs. Wm. Barnard, of Olmstead Falls, Ohio, and three sons, Kent of Hudson, Iowa, Melvin of Atlantic, Iowa, and Fred of Toledo, Ohio.

How High Do Bees Fly?

By H. A. Hansen

In the November, 1950, issue J. E. Landes asked a question I have often wished to have answered: How high do bees fly? I am inclined to agree with the Editor that the bee got into the plane before leaving the airport.

I know a man who keeps three colonies of bees 20 stories up on a high building in New York City. I learned recently that he took off 100 pounds of honey last season. Manhattan Island lies between the Hudson River and East River with New York Bay below. There is usually a strong air current between the high structures. Central Park is about the only pasture where they can gather nectar and pollen.

Pearl River, N. Y.

Pollination of Fruit

By R. O. B. Manley, Preston Crowmarsh, Benson, Oxford, England

Mr. Latham touched upon a subject of considerable interest to beekeepers on page 731 of December, 1950, Gleanings.

There can be no doubt that the cause of much of the difficulty in effective cross pollination during the last few decades is that a sort of vicious circle has been established. When plants that require insects as pollination agents are in a state of nature they are, as Mr. Latham points out, not usually growing in great masses covering hundreds of acres as is the case with large-scale fruit culture under modern conditions, which is a plain case of upsetting the balance of Nature.

In the course of ages there has come about a balance between plant and animal life. All animal life depends directly or indirectly on plants, and in many cases these have come to rely on animals for the carrying out of their reproductive and other functions. All this reciprocal action came out of evolutionary adaption and is, in natural circumstances, beautifully adjusted.

Then civilized man steps in and plants hundreds of acres of some plant such as apple in a continuous block of territory. The wild insects are unable to fulfill their functions over so greatly increased an area and some kinds, such as damage the fruit, incline to multiply greatly, whereas for some reason their destroyers do not multiply so fast. In time, if left alone, a balance would most likely be reached again, but we can't wait for that and begin to spray the trees with chemical agents in order to destroy the pests and in doing so we wipe out all the enemies of those pests, so more spraying is needed. This continues until, at the present time, all modern fruit farms seem to have come to the conclusion that almost continuous spraying is necessary if good fruit is to be grown at all. And the cost of all this piping of orchards and the setting up of expensive pumping stations must represent an enormous capital expenditure, while labor and chemicals must be a prodigious charge.

Whether, as some able men maintain, much of this could be avoided by cultivation without the use of chemical fertilizers and a reversion to humus farming, I do not know. But I do remember that in the days of my boyhood we used to have plenty of perfectly sound fruit of excellent flavor that would keep well, even in some cases until apples came in again.

Another curious thing is that while constant deluges of poisons and other chemical sprays are used, still there are plenty of the insects and mites against which the war is carried on to be found in every orchard. Looks as if they are becoming tolerant of these things. If so, the outlook for fruit growing is bad indeed.

It is difficult to see how the land can continue to stand being soaked in poisons year after year without serious injury to the plants that grow on it, and the animals, including **H. sapiens**, that feed on the plants. One thing is, I believe, a fact: The flavors of the fruits and other produce grown on such land is quite inferior to that grown more naturally on unpoisoned soil. Anyone can test this with tomatoes in a year or two. It will be found that those grown with humus only will be entirely better flavored than those dosed with chemical manures, and much the same is, I know, the case with all fruit.

As for pollination of large areas of fruit, it seems that hive bees are virtually necessary if decent crops of well-shaped fruit are to be grown.

* * * * *

Siftings

"This truly has been a record year for this country and though my returns would appear small compared with any of our beekeeper friends in the States, I am very pleased with them. When we have good returns here we like to think it is due to good management but in a poor season the weather gets all the blame. But it is all too true that there are more bad beekeepers than bad seasons. Yet it is so easy to put the blame on the weather."—Donald W. Williamson, Scotland.

Are You Interested in BeeKeeping?

By F. R. Shaw, University of Massachusetts, Amherst

The beekeeping fraternity is one of the most remarkable in the world. Faith, age, sex, color, or political beliefs are no barrier in membership in this brotherhood. People from all walks of life are members. It is one of the few organizations which embraces all mankind.

The sole consideration necessary for membership in this unique organization is an interest in bees and matters relating to them. There are literally thousands of people who enjoy and are benefitted by their interest in bees. Aside from any financial return that may be derived there are many intangible rewards for those who keep bees. It is a hobby which leads one into many fields. No matter what a person's training or occupation may be, he can find something to challenge his interest. Beekeeping will take you out-of-doors and will stimulate your interest in nature. A final return is the development, in many instances, of a philosophy of service.

In addition to such benefits as listed, the honey bee contributes millions to our economy through her production of honey and wax. As an agent for accomplishing pollination, bees perform a service even more valuable than the total value of honey and wax they produce. The world would be much more barren without honey bees. We owe much to this humble insect.

In view of the many benefits derived from keeping bees either as a hobby or as a profession it may be well to raise the question as to whom is responsible for the development of equipment which brings the opportunity for beekeeping to us all. It is my feeling that both the hobbyist and the commercial beekeeper might well consider and honor the man who developed methods and equipment to make modern beekeeping possible.

First and foremost of the leaders in beekeeping is L. L. Langstroth. This great and good man stands head and shoulders above other great men who contributed to our beekeeping knowledge. Through his discovery of the bee space and a practical movable-frame hive, Langstroth is responsible for the development of modern beekeeping. His discovery of the bee space made possible the manipulation of bees and for the first time man was truly able to manage bees.

Should the beekeeping fraternity seek to perpetuate our knowledge of Langstroth and his life? I feel this is highly important. It is particularly significant that a Memorial Service be held in 1951 since this marks the one hundreth anniversary of the discovery of the bee space. With this in mind the Massachusetts beekeepers are planning such a service to be held in Andover on Sunday afternoon, July 22, 1951, in the church where Langstroth was pastor from 1836-1839. A bronze plaque will be installed in the church. A splendid program is planned with internationally famous beekeeping specialists participating. Such a program deserves the support of all beekeepers. You can help this worthy cause in two ways —one by attendance and participation in the program and the second by a financial contribution. A record is being kept of those who support the Service and all contributions will be gratefully received and acknowledged. Such contributions can be sent to Wallace R. Parker, Secretary-Treasurer of Mass. Federation of Beekeepers' Associations at West Boylston, or to the author.

It may not be out of place to state that in 1948 a Memorial Service to Langstroth was held at Greenfield, Massachusetts. The satisfaction experienced by those who participated there was well expressed in the words of Mrs. E. F. Phillips on that occasion:

"I believe that all of you were as proud as I was this afternoon to have a part in adding a punctuation mark to American history. We shall often think back with satisfaction to this day in Greenfield and the beautiful memorial to Langstroth because here we helped to pin down a fragment of American culture for the rest of the world and for future generations to note."

Come and participate in our Memorial Services to L. L. Langstroth. Your support will be greatly appreciated.

G. S. Garrison, U. S. Department of Agriculture, Beltsville, Md.

Dr. John W. Carlson, of Logan, Utah

Pollination Meeting at Ardmore, Oklahoma

The seventh annual meeting of the Pollination Committee of the National Beekeepers' Federation, held at Lake Murray Lodge near Ardmore, Oklahoma, was attended by approximately 200 people. Considerable credit is due Lyman Coe and his associates of the Noble Foundation for the fine hospitality.

The program of the three-day meetings were full of valuable information on the importance of bees to our American agriculture. One could not help but feel that the beekeepers have sold their services too cheaply during the years and it is going to require a lot of united effort to put beekeeping in its rightful place.

Louis Bromfield, noted lecturer and authority on rejuvenating worn-out soils with good farm practices, emphasized the value of clovers and to secure good clover seed yields we must have bees. His address at the banquet was one of the high points of the meeting.

An opportunity was afforded the persons in attendance to ask questions at the close of each talk.—D. C. Babcock, San Antonio, Texas.

At the beekeepers' table. Louis Bromfield is third from the right.

American Honey Institute News Notes

By Harriett M. Grace, Director
Commercial State Bank Building
Madison 3, Wisconsin

National Honey Week will be observed throughout the country from October 22 through October 27. At this time, plenty of promotion will be hitting the public, and it would be an excellent time for the grocer and beekeeper to take advantage of this push and push honey.

Honey can be used as a spread on cereals, bread, waffles, pancakes, and other foods. Or it can be used in combination with other ingredients in cooking and baking. Honey is especially good in baking because of its ability to absorb and retain moisture and thus retard the drying out and staling of baked goods. It is also good as an ingredient in desserts, salads, confitures, candies, with meats, vegetables, and in sandwiches.

The grocer will find that he can profit from this week with several tie-ins with other products.

First of all the grocer must display his honey properly. The honey should be at eye level. If it is too high, the housewife in her rush along the aisle will not notice it. The same principle applies if it is set too far below eye level. Keep the honey where it can readily be seen on a trip through the store.

Keep plenty of honey in the store. To build a proper display so that the honey will move, it is necessary to have enough containers of honey on the shelf. A survey taken recently showed that in many groceries only a half dozen jars of honey can be found. If the consumer has to search that diligently to find a jar of honey among the hundreds of products that cry for her attention, she'll select something else instead.

To look and be effective, a honey display should have no fewer than 100 containers. This number should be carefully maintained to keep the supply moving.

Here are some ideas for displaying the honey:

Have a rotating display and feature honey packaged in two or three different ways. When honey rotates it gives the purchaser a chance to see its golden color and attracts her eye because it differs from other stationary products. Have several bottles of extracted honey, some containers of comb honey, and perhaps chunk honey, a combination of extracted and comb honey.

Then tie-in honey with several other products. For instance, place the display of honey next to a display of pancake mix or waffle mix, and watch it disappear. Or place it near the bread or crackers or cereals.

You might have a sign nearby saying "Honey and Pancakes - a good combination," or some similar sign with whatever product you decide to promote with honey.

Since the different varieties of honey depend on what section of the country you live in, it would not be wise to state here just which flavors of honey should be promoted. Each region has its own specialty. Pick that specialty to push and advertise during National Honey Week and during the following weeks that you advertise honey. It will mean cooperation with your local grocer and in turn bring you increased patronage throughout the community.

There are many little leaflets put out by the American Honey Institute that are available to beekeepers to give to grocers for distribution to customers. These leaflets contain recipes using honey that are tested and found good.

If you would like to secure a list of these, you can do so by writing to the American Honey Institute, Madison 3, Wisconsin. Pamphlets range in price from 25 cents per 100 to $12 per 100. The latter are full-fledged recipe books that could be sold by you or the grocer to encourage the sale of honey and perform a fine service for your customers.

Plan a display featuring honey now. Its color blends beautifully with the fall colors and fruits. See if this won't promote honey and give you one more source of profit and one more way to encourage consumer buying.

Just News

The Iowa-Nebraska beekeepers' joint summer meeting to be held in Council Bluffs, Iowa, on July 14, has the following program prepared for all comers:

9:30 - 10:30 A.M. - Open house at The A. I. Root Company's plant
11:00 - 12:00 A.M. - Recreation at Kewanis Point
12:00 - 1:00 P. M. - Pot luck picnic. (Coffee and lemonade by The Root Company. Bring plate and utensils)
1:30 - 4:00 P.M. - Speakers and contests.

Contests to include:
1. Slipper kicking
2. Frame nailing
3. Smoker lighting
4. Henry Hansen's Quiz Session

(Bring hammer, smoker, and smoker fuel)

Visitors are welcome.—R. J. Walstrom, Extension Entomologist.

* * * * *

The Westchester County Beekeepers' Association will hold their regular monthly meeting on Sunday, June 17, at 2:30 P. M. at the home of Mrs. Julia Chase, 12 Windle Park, Tarrytown, New York. This being the first outdoor meeting of the year, a hive demonstration will be given, weather permitting. A guest speaker will be on hand to address the group.—A. M. Barnes, Publicity.

* * * * *

Honey Production in Canada. The 1950 crop is estimated at 28,351,000 pounds which is a decrease of 10 per cent from the 1949 crop. The highest producing province was Manitoba with an average of 131 pounds per colony and the lowest was New Brunswick with a per-colony average of 27 pounds. The average per colony production throughout the Dominion was 66 pounds.

* * * * *

A copy of the **Honey Price Support Program and Honey Packer Contract** as of May 10, 1951, may be obtained from E. M. Graham, U. S. Department of Agriculture, Fruit and Vegetable Branch, P. M. A. Washington 25, D. C.

* * * * *

F. W. Jones and Son, Ltd., Bedford, Quebec, in business 73 years, has maintained a branch at Guelph, Ontario, for almost 20 years to serve Western Ontario beekeepers. Just recently Jones and Son acquired the bee supply division of the Ontario Honey Producers' Co-op. and as a result have closed their Guelph branch and removed to Toronto.

* * * * *

The first outdoor meeting of the **Middlesex Co. (Mass.) Beekeepers' Association** held at the home of member Mrs. S. S. Fitzgerald, on May 26th was enjoyed by all who brought picnic baskets and stayed to see the "New Club Hive" which was started with a 3-pound package of Italian bees at our meeting in Waltham on April 28th. Our next outdoor meeting is scheduled for June 30th at the home and apiaries of our President A. J. Baptiste on Lexington Road, Concord, Mass. We will further inspect the "Club Hive" and note the development from month to month as the hive is transferred to the meeting places. At the last outdoor meeting, scheduled for Sept. 29th some lucky member will win the "Club Hive".—John H. Furber, Sec.-Treas.

* * * * *

PENNSYLVANIA BEEKEEPING SHORT COURSE to be Given August 20 to 24, Inclusive

The beekeeping short course given at the Pennsylvania State College each summer is one of the most complete offered to beekeepers anywhere in the country. The course consists of a series of lectures and demonstrations on management problems. The lectures are given each morning and the demonstrations in the afternoons. The morning hours are selected for lectures, since this is the time of day that it is most difficult to work with bees. The lectures cover seasonal management from spring to fall, diseases of the bee, marketing, queen rearing, and other subjects. The demonstrations are given both in the bee yards, which are located on the college farms, and on other farms a few miles distant.

The colonies in the respective apiaries are run for extracted honey, comb honey, queen rearing, and the several phases of research, includ-

ing disease and swarm control. The afternoon programs in the bee yards and laboratory include demonstrations on extracting and bottling honey, artificial insemination of queens, transferring bees from box to modern hives, rendering beeswax, candle making, and several other phases of beekeeping.

The equipment available for teaching this course consists of the following: Seven apiaries with a total of about 140 colonies of bees; 80 queen mating hives; extracting equipment for the small and commercial beekeeper; equipment for filtering honey; newly designed equipment for heating, straining, and bottling honey; equipment for artificially inseminating queens, and other items for scientific and practical beekeeping. Model bee hives, color slides, and movies are used to help make the lectures more interesting and easier to understand.

Beekeepers attending the course have found little time for non-essentials, since lectures or demonstrations are held morning, afternoon, and evening. Moving pictures and color slides are used largely in the evening when the program is somewhat lighter in nature. The course ends on Friday evening with a party where honey baked products are served as refreshments.

The principal speakers for the course are: George Rea, W. W. Clarke, and Edwin J. Anderson.

The cost of the course is $5.25, plus room and board for residents of Pennsylvania, and $9.25, plus room and board for non-residents of the state. Any who may wish to spend a week of their vacation improving their knowledge of beekeeping should write to A. L. Beam, Dairy Building, State College, Pa. for further information, or to register for the course. More details will be given next month.—Edwin J. Anderson, Assoc. Prof. of Agriculture, State College, Pa.

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XIV INTERNATIONAL BEEKEEPING CONGRESS

British Organizing Committee.
President - Dr. R. H. Barnes.
Outline of Program subject to alteration.

Monday, 3rd September.
Registration of Members of Congress in the Town Hall, Leamington Spa, where they will receive the official programme, member's badge, copies of papers etc.
Monday Evening:
Reception by The Right Worshipful the Mayor of Leamington Spa.

Tuesday, 4th September:
Morning sessions of papers.
Afternoon sessions of papers.
Evening: Congress Dinner. Informal dress. (Cost included in registration fee)

Wednesday, 5th September:
Whole day excursion to Gloucestershire (cost included in registration fee).
Evening: Free.

Thursday, 6th September:
Morning and early afternoon sessions of papers.
Afternoon optional excursion to Warwick and Stratford-upon-Avon. Approximate cost 5/-.
Evening: Free, or attend Play at Shakespeare Memorial Theatre, Stratford-upon-Avon.
Approximate cost for dinner and theatre 20/-.

Friday, 7th September:
Morning sessions of papers.
Afternoon sessions of papers.
5 p. m. Apimondia Meeting re World Federation of Beekeepers.
Evening: Films

Saturday, 8th September:
Honey Show.

Scientists from Algeria, Australia, Canada, Egypt, France, Germany, India, Japan, South Africa, Switzerland, the United States of America, and The British Isles have been invited to read papers at the Congress. From all over the world they have responded generously to the Committee's invitation to submit papers for consideration and the Programme Committee had a very difficult task to select the papers to be read at the Congress. They hope that the selected papers will be of interest and value to beekeepers and further the progress of better beekeeping, enabling beekeepers from all lands to play their part in the world wide drive for increased food production.

Papers to be read will be presented in the following sessions:—

Pollination and Spraying Problems;
Nectar, Pollen and Honey;
Bee Behaviour and Physiology;
Bee Breeding; Bee Diseases;
Scientific Colony Management;
and a session of papers of general interest.

Warwickshire Beekeepers' Association are organizing a show of honey, beeswax, mead, and beekeeping equipment during the 6th, 7th, and 8th of September which will be of interest to Congress members.

(Continued on page 380)

Buy and Sell

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 15c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding publication.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Onsted, Michigan.

NEW CROP of honey shipped daily from producer in Florida. Pure orange blossom, 5 lbs.,$2.25; Pure Florida cut comb honey, 5 lb. pail, $2.75. No C.O.D. orders. All shipments prepaid. E. R. Raley, Daytona Beach, Florida.

ORANGE BLOSSOM HONEY in new 60's. Peter W. Sowinski, Fort Pierce, Fla.

ANY GRADE—Any amount. Alexander Co., 819 Reynolds, Toledo, Ohio.

CLOVER extracted honey in sixties. Abraham Brubaker, Lancaster, Pa., Rt. 1.

HONEY — white clover, heated and strained, ready for bottling, 15c per lb. in 60 lb. cans. FOB Louisville. Lose Brothers, 206 E. Jefferson St., Louisville, Ky.

IOWA Honey. Extra white. Light amber. New Cans. Truck lots. Russell D. Smalley, Beaver, Iowa.

OFFERING 9½ cents lb. for good buckwheat honey. Eastern Food Products, 115 Division Ave., Brooklyn, N. Y.

MICHIGAN'S FINEST WHITE CLOVER HONEY. New sixties. Fully ripened and CLEAN. You will be pleased. Sample, 20 cents. John McColl, Tecumseh, Michigan.

FANCY GEORGIA tupelo gallberry extracted and chunk comb honey, packed 2½ and 5 lbs. Bulk bees, 75c pound. Valdosta Honey Co., Valdosta, Ga.

500 cans water white clover honey. 11c per lb. F.O.B. Omaha. John L. Tideswell, 2711 No. 63rd St., Omaha, Nebraska.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on COD terms except where the buyer has thoroughly established his credit with the seller.

CASH FOR YOUR HONEY — Light extracted or comb. Regular trade send sample. 60 lb. cans furnished if desired. W. R. Moomaw, Stone Creek, Ohio.

CASH FOR BEESWAX. Write as to quantity and we will quote price. Muench-Kreuzer Candle Co., Inc., Syracuse, N. Y.

HONEY WANTED—All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 1360 Produce St., Los Angeles 21, California.

ALL GRADES HONEY AND WAX WANTED—Mail samples, advise quantity and cash prices delivered to us. HONEY SALES COMPANY, 1808 NO. WASHINGTON AVE., MINNEAPOLIS 11, MINN.

CARLOADS or less of honey and wax. Send sample and price. Alexander Company, 819 Reynolds, Toledo, Ohio.

WANTED — White and amber honey. Any amount. D. F. Treap, R.D. 3, Box 222, Kent, Ohio.

HONEY AND WAX WANTED — Mail sample. Advise quantity. BRYANT & SAWYER, 2425 Hunter St., Los Angeles 21, California.

CASH for your comb honey and all types extracted. Send sample and best price. Buckeye Honey Co., 3930 No. High St., Columbus 2, Ohio.

BEFORE YOU SELL your clover honey contact us. Send samples and tell us how much you have. The Delaware White Clover Apiaries, 139 West William St., Delaware, Ohio.

WANTED—EXTRACTED HONEY— Clover or light amber. C. H. Denny, Rt. 4, Ravenna, Ohio.

WRITE FOR shipping tags and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 percent saving. Walter T. Kelley Co., Paducah, Kentucky.

FOR SALE

We carry a full line of ROOT QUALITY Bee Supplies. Prairie View Honey Co., 12303 12th St., Detroit 6, Mich.

WRITE FOR CATALOG — Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies and Comb Foundation, Onsted, Mich.

The only comb foundation plant in the East. We sell foundation, work your wax, render combs and cappings. Robinson's Wax Works, R. D. 3, Auburn, N. Y.

QUEENBEE PAINTING OUTFIT, $1.50; colony records, 10, 15c postpaid. Southwick Apiaries, Waban, Mass.

BEE SUPPLIES of all kinds. Catalog free. Hodgson Bee Supplies, Ltd., 565—13th Ave., New Westminster, B. C., Canada.

YOUR WAX WORKED INTO quality medium brood foundation, 23c pound; 100 pounds, $18.00. Medium brood foundation for sale, 80c pound. Fred Peterson, Alden, Iowa.

THE BIGGEST BEE SUPPLY Catalog published (64 pages) free for the asking. Listing many items not found in other Catalogs. No agents—buy direct and save 20%. WALTER T. KELLEY CO., PADUCAH, KENTUCKY.

FOR SALE: 300 colonies bees in Northern Michigan with complete equipment for 500. Truck included and honey house available. Box 452, Gleanings, Medina, Ohio.

FOR SALE — Three half-ton storage tanks, new standard frames and hives, nailed and painted, used bottom boards. Homer Van Scoy, Candor, N. Y.

FOR SALE — Electro-Flo Filling Machines. Designed for Honey. Fills containers automatically. Write for information, or see in operation. Hancock Honey House, Hancock, Iowa.

FOR SALE — 30 frame extractor, in good condition. Price $75.00. Philip Comings, Bainbridge, New York.

FOR SALE — 40 10-frame standard size extracting supers, with full drawn comb. State inspected. Orson Marquart, 1103 N. Main St., Newark, New York.

FOR SALE—One 3-frame extractor and capping drier with power attachment and motor; one 2-frame reversible extractor, hand power; one 45 gal. honey tank with gate and strainer supporting screen; three copper tanks for liquefying honey (two will hold four 60-lb. cans and one two 60-lb. cans); 15 wooden shipping cases with covers (capacity 2 cans each); electric uncapping knife; several sturdily built quadruple and double packing cases. All in A 1 condition. Ray C. Bish, Tiffin, Ohio.

USED bee equipment cheap. State your wants. Also a shoemaker's outfit, cost $2500, will take $500. H. G. Quirin, 400 South West St., Bellevue, Ohio.

BEEKEEPER'S SUPPLIES — Write for complete price list. Also special sale at cost on section foundation Root's Thin regular J-3 and Dadant's thin surplus J-3103 to close out stock. Roscoe F. Wixson, Dundee, N. Y.

FIFTY 10 frame supers drawn combs, $2.50. John Mihevc, 837 East 237th St., Euclid, Ohio.

Complete equipment for 150 colonies. 1000 standard bodies drawn combs. All 10-frame. No disease. Sell all or part. Gerald Hodson, Amboy, Indiana.

FOR SALE — 70 colonies of bees, no disease. Irvin Van Devier, Medina, Ohio.

FOR SALE—43 colonies bees 10 and 8-frame, just requeened with hybrids. 193 deep supers, 81 shallow, 38 lids, 30 bottoms, 50 excluders, feeders, etc., all in yard shape. Located on good sweet clover and ready to go. A bargain for some one as I am unable to care for them. Write Box 315, Bussey, Iowa.

HONEY WANTED
Carloads and less than carloads. Mail sample and best prices in all grades.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

Michigan Headquarters for
Root QUALITY
Bee Supplies
Complete Line of Bee Supplies and Honey Containers
Prompt Service
Michigan Bee and Farm Supply
510 N. Cedar St.
Box 7 Lansing, Michigan

G B. Lewis Wooden Goods!
Dadant's World Famous Crimp Wired Foundation. — Their 85 years' experience is your safeguard. Catalogue on request.
Dotson's Apiaries
3059 W. Roxboro Rd., NE
ATLANTA, GEORGIA

HONEY LABELS
Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

60-LB CANS

Several
Thousand
Used Cans
Just Like New
Also
Brand New Cans
With Large
Size Openings
Packed in Cartons
of 24 or
in Bulk Truckloads
or
Carloads

HONEY LABELS

Improved designs, embodying color, balance, simplicity, and distinction. Please write for free samples and prices.

C. W. Aeppler Co.

Drawer 239
Oconomowoc, Wisconsin

550 — 10 frame 2-story colonies, $8.00 each, ready to go. Selling account other business. Also Chinchillas (not rabbits) for sale. These fascinating beautifully furred little animals from the Andes are now in limited production in America and are a profitable source of income in the sale of good breeding stock. Write for information to E. L. Harris, Inca Chinchilla Ranch, 1721 Oakdell Drive, Menlo Park, California.

BEES AND QUEENS FOR SALE

We use all possible care in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for certificate of inspection as a matter of precaution.

CAUCASIANS—Booking orders for 1951. Lewis & Tillery Bee Co., Route 1, Box 280, Greenville, Ala.

GOOD ITALIAN QUEENS, $1.00 each. D. W. HOWELL, Shellman, Georgia.

BEES FOR SALE AND LEASE—Montana, Wyoming, Idaho, Nebraska. Contact Bradshaw & Sons, Wendell, Idaho.

BREWER'S LINE BRED CAUCASIAN QUEENS. 1 24, $1.25; 25-99, $1.15; 100-up. $1.10. Brewer Bros. Apiaries, 3616 Caucasian Circle, Tampa 9, Florida.

IMPROVED ITALIANS, 600-lb. strain, ½-lb. pkg. with queen, $2.95; 3-lb. pkg. with queen, $4.00. Henry Loehr, Jr., Caldwell, Texas.

CAUCASIAN BEES AND QUEENS. Extra good workers and very gentle. 2 lb. with queen, $4.00; 3 lb. with queen, $5.00. Select untested queens, 1 to 25, $1.20; 25 to 50, $1.10; 50 up, $1.00 each. Satisfaction guaranteed. Black River Apiaries, Elliott Curtis, Mgr., Currie, N. C.

GOLDEN ITALIAN bees and queens. Real yellow and very gentle. 2 lb. with queen, $4.00; 3 lb. with queen, $5.00; Select untested queens, 1 to 25, $1.20; 25 to 50, $1.10; 50 up, $1.00 each. Satisfaction guaranteed. Carolina Bee Farm, Graham, N. C.

EARLY PACKAGE BEES. Prompt shipment begins May 10th. Two-pound package and queen, $5.50 postpaid. Three pound package and queen, $6.60 postpaid. Choice Italian queen, $1.25. Safe arrival guaranteed. Health certificate furnished. Birdie M. Hartle, Reynoldsville, Pa.

OUR QUEENS are Italians of the Geo. W. Moore strain, are line bred and purely mated. For the remainder of the summer our prices will be 75 cents each, in any numbers. Hanson, Hall Bee Co., Livingston, Alabama.

NORTHERN ITALIAN QUEENS — Be ready June 25th, $1.00 each; 10 up, 90c. Shirl Baker, Rodney, Michigan.

YANCEY HUSTLERS, Three-band Italians—bred for business. Select queens, $1.00 each; $8.00 per dozen. Guaranteed to please. Caney Valley Apiaries, 2500 Nichols, Bay City, Texas.

GOLDEN QUEENS, $1.00 airmail; 24 to 49, 90c; 50 and up, 80c. O. E. Brown, Rt. 1, Asheboro, N. C.

HELP WANTED

HELP WANTED; Extra man to help work bees, experienced or inexperienced. Good wages. M. E. Ballard, Roxbury, N. Y.

WANTED — Good reliable bee man, steady work, good wages, modern house. References required. C. M. Hurst, Blackfoot, Idaho.

POSITION WANTED

HELPER, 27, single, working in Southwest, wishes to work in Washington State from June to September. Teddy Isler, Powers' Apiaries, Parker, Arizona.

SEEDS

HONEY PLANTS our specialty. Catalog on request. Pellett Gardens, Atlantic, Iowa.

MAGAZINES

WESTERN CANADA BEEKEEPER—Official organ of the Manitoba Beekeepers' Association. One year, $1.50; two years, $2.25; three years, $3.00. In combination with Gleanings in Bee Culture, $2.75. 211 Affleck Bldg., Winnipeg, Canada.

Read the South African Bee Journal. Published every two months. Subscription 7/6 per year to the Treasurer. P. O. Box 3306, Cape Town, South Africa.

KNOW interesting facts concerning the bees of India through the INDIAN BEE JOURNAL, published in English by the Bhupen Apiaries (Himalayas), Ramgarh, Dist. Naini Tal, U.P., India, or available through them. Subs. Rs7/ or 10 shillings or 2.25 dollars per annum. Single copy, Rs¼ s. 1/9 or 40 cents (International Money Order). Payment in mint postage stamps of your country accepted.

THE BEE WORLD, international and scientific journal on bees and beekeeping, with apicultural abstracts. Monthly, including membership in the Apis Club, $1.75 per annum. Specimen copy 12c U.S. postage stamps, from The Secretary, The Way's End, Foxton, Royston, Herts, England.

DO YOU FIND it difficult to secure information about sheep and sheep ranching methods? The SHEEP AND GOAT RAISER reaches more sheepmen with more information on range sheep than any other magazine published. Subscription, $1.00. Hotel Cactus, San Angelo Texas.

TOO LATE TO CLASIFY

FOR SALE—Reversible bottom boards, 10 KD, $10.00; 50 KD, $47.50; 100 KD, $90.00; 150 KD, $127.50. These bottom boards are made of high grade cypress, cut from large trees. Sample, nailed up $1.25. Fred L. Poole, Elizabethtown, N. C. Rt. 2.

FOR SALE—Honey extractor, 4 frame, Root's, automatic practically new. $85.00. Joe Finfera, Lyons, Ohio.

New crop Georgia cut comb honey in 20 oz., 2½ and 5 lb. jars. Ready about June first. Wholesale here or delivered. 3000 to 4000 cases. George Bray, Nahunta, Georgia.

Illness forces sale of 175-colony, well established bee business, equipped honey house, 6-room furnished home on 1¼ acres land. E. L. Sitz, Rt. 5, Box 410-A, Tampa, Fla. Ph. 33-4396.

JENSEN SAYS:

Don't gamble with your time or honey crop on queens of questionable quality. In queen rearing as in other pursuits there are degrees of attainment to be sought. It has always been our desire and ambition to produce the HIGHEST QUALITY QUEENS humanly possible. We do enjoy an enviable position among queen breeders, and it has been no happen-so. The best years of a life have been devoted to, and resulted in, our achievement.

Your Choice of Two Outstanding Strains.

"Magnolia State" Italians our old reliables.

1-24	$1.25
25-99	1.15
100-up	1.10

Dadant's Starline Hybrids. D.R. A Development of Merit.

1-24	$1.30
25-99	1.25
100-up	1.15

Queens Clipped and Marked Free.

Jensen's Apiaries

Macon, Mississippi

Northern Queens

HOLLOPETER'S hardy, hustling, honey gathering Italians

Ready May 20 at $1.00 each

White Pine Bee Farms

Rockton, Pa.

Italian Bees and Queens

2 lb. package bees with queen, $2.00
3 lb. package bees with queen, 3.00
Queens, ... .55

We guarantee live delivery and health certificate with each shipment. Full weights and service that will please you.

Bayou Bee Co.

Rt. 1, Box 49, Montegut, La.

1876 1951

Our 1951 crop of Michigan clover honey should be ready for the market in July. Dealer: if you want clover honey of the best quality, get on our mailing list, and we will keep you advised on crop conditions, and prices for the coming season.

Address E. D. Townsend & Sons, Northstar, Michigan. The BEST known name in HONEY PRODUCTION.

Queens Our Specialty
Italian, Caucasian, and Carniolans
Three Isolated Mating Yards to Prevent Mixing Breeds
ITALIANS .....**$0.90 each**
Caucasians ..... **1.00 each**
Carniolans ..... **1.25 each**
Italian queens after June 1st, 60c each, any number.
All Queens shipped by Air Mail and guaranteed to please.
Walter D. Leverette Apiaries
Box 364 Fort Pierce, Florida

NORMAN BROS.
Package Bees and Queens

QUEENS:		
	Untested	$ .65
	Tested	1.25
2-lb. Pkg. with queen		2.75
3-lb. Pkg. with queen		3.50

Bright 3-Banded Italians
Quality Plus Service
Only good quality bees and queens pay profits. Our 30 years' experience in queen rearing and package shipping assures you quality and service that you can depend on. Safe arrival, health certificate, satisfaction guaranteed in U.S.A. and Canada.
All package bees shipped by express F.O.B. If wanted shipped parcel post, add postage.
Norman Bros. Apiaries
Ramer, Alabama

KNIGHT'S
Three-Banded Leather-Colored Italian Queens
75c each, any number
No charge for clipping
Satisfaction guaranteed
Safe arrival
Shipped Via Air Mail
John T. Knight
Hayneville, Alabama

John M. Davis Strain Italian Queens

1-24	24-up
$1.25	$1.20

Daughters of ABBA Tested Stock

1-24	24-up
$1.50	$1.40

LITTLE APIARIES
Shelbyville, Tenn. P.O. Box 122

Protect Your Future. Buy Your Extra Savings Bonds Now.

A Talk to Beginners

(Continued from page 351)

found some that needed more comb space. It was an easy matter to walk over to a pile of supers to get as many as were needed to put on. At present, because of heavy rains, it would be impossible for me to drive a truck from the main road into my yards and it would be necessary to carry the supers in from the road. This is real work, as I have found out from past experiences. I don't mind hard work but I do object to unnecessary work.

When Will the Main Flow Start?

As stated in the previous talk, this may be the year we have been waiting for. We know that "hope springs eternal in the human breast". If we knew exactly, we could arrange our management program more intelligently than we usually do.

In the vicinity of Medina, I recall that the main honey flow started May 21 in 1921 and we secured an unusually large crop. In 1940, the flow did not begin until July 1. During June, the weather was cold and rainy and the bees barely made a living. On July 1 warm weather came and the bees started to work and made up for lost time. The average was over 100 pounds per colony and that was very good for Medina County.

Don't be in a Hurry to Pinch Queen Cells

I find there is a tendency to destroy queen cells as soon as they are found. Why destroy them if they can be used to advantage? I like to have a number of "nucs" in each yard from which I can take young queens, when needed during the season. During late May or early June when I check colonies, I may find some unusually good looking queen cells. These are usually supersedure cells. I claim that a queen from a supersedure cell, provided the stock is good, is hard to beat. When I find such a cell I take the comb with adhering bees and place it in a hive at the side of the apiary, making sure there is enough honey in the hive for bee food. I usually place an empty comb on either side of this comb containing the cell, and shake a few young bees from the colony into this nuc. Most of the old bees will drift back to the parent stand.

(Continued on page 375)

(Continued from previous page)

In due time, the virgin queen will emerge from the cell and mate. In many instances, during a honey flow, the nuc will build up rapidly and it is necessary to give more frames or combs to provide space for egg laying and incoming nectar. I use a follower board or division board at the side of the combs to help restrict the nuc down to the amount of space needed.

When I find a queenless colony, I simply take two combs of bees and brood from this nuc, with the queen between the two combs, and place these in the middle of the brood chamber of the queenless colony. If this is done in the middle of the day, during a good honey flow, the queen introduced will probably be accepted. It is rarely, if ever, I have lost a queen by this method of introduction. If I leave some brood in the nuc, the bees, during a honey flow, will produce another queen or I may give the nuc another queen cell.

Incidentally, this is a good method of making increase or keeping up the required number of colonies in apiaries, year after year. Such colonies are likely to be quite strong at the close of the season. If they

(Continued on page 378)

Italian Bees with Yellow Italian Queens
2 lbs. with queen, $2.25 each.
3 lbs. with queen, $2.85 each.
Queens .50 each p.p.
Air Mail .55 each.
M. O. only.
Plauche Bee Farm, Hamburg, La.

Package Bees and Queens
Jackson Apiaries
Funston, Georgia

Healthy Italian Bees & Queens
Write for 1951 Prices
Georgia Bee & Honey Apiaries
P. O. Box 312 Hortense, Ga.

DONE IT AGAIN
Summer Prices

Merrill's quality Bees and Queens are backed with 100 per cent Satisfaction Italians only.

2lb. packages with queens,	$2.00
3lb. packages with queens,	2.50
Improved D.R. Queens, untested	.50
Tested queens,	1.00

Our 30th year as shippers of bees and queens.

Merrill Bee Company
P. O. Box 115
State Line, Miss.

OLDEST BEE JOURNAL IN THE ENGLISH LANGUAGE
Keep up on markets, practices, scientific data, regulations, and plant possibilities.
1 year, $2.00, U. S. and Canada
Foreign postage, 50c a year extra
AMERICAN BEE JOURNAL
Hamilton, Illinois

BRITISH BEE JOURNAL
The Only WEEKLY Bee Journal in the World
Subscription $3.00 per annum payable in advance.
Keep up to Date in Beekeeping by taking out a subscription now through our agents:
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Australasian Beekeeping News
The Leading Bee Journal of the Southern Hemisphere is the
"AUSTRALASIAN BEEKEEPER"
Subscription 10 shillings per year. Start any time. Inquire for International Money Order for 10 shillings (Australian) at your Post Office. Overseas postage, 2/ per year extra.
Write now to the Editor
P. O. Box 20, West Maitland
New South Wales, Australia

ITALIAN SUNKIST KELLEYS ISLAND

Light-colored Italians or Kelley's Island Hybrids.

Queens clipped, airmailed and postpaid; Packages FOB.

2-lb. w. queen, $2.50 4-lb. w. queen, $4.30

3-lb. w. queen, 3.40 Queens, each .65c

Sunkist Bee Company Convent, La.

A FAMOUS STRAIN OF YELLOW ITALIANS

produced by

The Most Modern Bee Breeding Establishment on Earth

NEW 1951 PRICES

Lot	Queens	2 lbs.	3 lbs.	4 lbs.	5 lbs.
1-5	$1.35	$3.55	$4.50	$5.45	$6.40
5-15	1.30	3.50	4.45	5.40	6.30
15-25	1.20	3.40	4.35	5.25	6.20
25-100	1.15	3.30	4.25	5.20	6.10
100 up	1.05	3.20	4.15	5.05	6.00

Select Tested Queens, $5.00, no discount

SPECIAL DISCOUNTS NOW IN EFFECT ON ABOVE PRICES

10 Per Cent on Package Bees

25 Per Cent on Queen Bees

The Daniels Apiaries Picayune, Miss.

GET THEM WHILE YOU CAN!

Mail Order Prices

We have available the following bee supplies which our inspectors have not passed as first line quality — these are the same as our pre-war mail order brand — slight defects in the material make these great savings possible for you.

This is Offered as "Mail Order Grade"

C-2	Full Depth Supers, empty, 5's	$8.30 per carton
C-13	Shallow Supers, empty, 5's	5.20 per carton
D-2	Beeway Supers, empty, 5's	5.35 per carton
B-2	Metal Covers with Inner Covers, 5's	11.10 per carton
B-13	Bottom Boards, 5's	6.15 per carton
G-6	Standard Frames in 100's only, long top	10.85 per carton
G-16	Standard Frames in 100's only, 2-piece bottom bars	10.85 per carton
G-22	Shallow Frames in 100's only, long thin top	8.50 per carton
H-3	50 Sheets Root 3-Ply Foundation (slightly damaged)	7.25 per carton
H-4	200 Sheets Root 3-Ply Foundation (slightly damaged)	28.00 per carton
	1950 ABC & XYZ of Bee Culture (slightly damaged) does not affect value of book	2.50

Available From Medina Only

Mail, Freight, and Express Charges Extra

Net Cash with Order — No Discounts

We reserve the right to return your cash if our stock is exhausted when your order is received.

The A. I. Root Company Medina, Ohio

BREEDING IMPROVED HONEY BEES

(Continued from page 337)

existed in this area a number of types, among which were the Bedforshire, Byfield, Russian, and Big China. Some Berkshire blood was introduced in 1835 and some Irish Glazier blood in 1839. There was intermixing of these breeds without a definite plan for 20 years or more. In 1870 the Warren County hog was black and white spotted. It was regarded as a breed in 1872 and was given the name "Poland China." The diverse races of swine from which this breed was found could hardly have come together anywhere on earth without the aid of man. From this heterogeneous mixture the breed arose by inbreeding of selected sires.

Why have not bee breeders done the same thing with bees? Many diverse races and strains from all areas of the world have been brought into the United States. There is thus great genetic variability in our bees. When we look around we find outstanding individuals (colonies). We have seen that successful breeders of other animals succeeded in establishing superior breeds of animals by inbreeding and selecting from among outstanding individuals and their descendants.

Bee breeders did try methods used by breeders of other animals but they did not succeed. It is true that they could not control matings so successfully as other animal breeders, but this was not the major cause of their failure. Studies indicate that a major cause for this failure was a lack of knowledge of sex determination in honey bees. Its importance to bee breeding will be explained in a later section.

(to be continued)

SULLIVAN'S BEES

Breeder queens from A.B.B.A. tested stock. Daughters mated to drones from Sullivan's stock.

	1 to 10	10-up
3 lb.	$3.75	$3.50
2 lb.	2.75	2.50
Queens	.75	.65

Sullivan's Apiaries
Gilbertown, Ala.

ITALIAN BEES AND QUEENS

2 lbs. w. qn.	$2.65
3 lbs. w. qn.	3.25
Queens	.75

Gold Leaf Apiaries
Box 252 Hahira, Georgia

Italian Bees and Queens

	1-20	21-up
3 lb. pkg. w. q.	$3.35	$3.25
4 lb. pkg. w. q.	3.90	3.80

Queens — Large and Laying
1-99 55c each
100-up 50c each
Lots of Booster packages

Mitchell's Apiaries
Bunkie, La.

GREEN'S

Profit producing Italian QUEENS will please you. Why not try a few. We specialize in small orders and you will get more good queens for your money than ever before. Price, 75c each, through June and July.

D. P. GREEN
De Land, Fla. R 2 Phone 512M

Italian Bees and Queens

Prices-

Lots of:	2 lb.	3 lb.	4 lb.
1-25	$2.95	$3.80	$4.60
25-99	2.85	3.70	4.50
100-up	2.75	3.60	4.40

Queens each 85c

Farris Homan, Shannon, Miss.

OHIO QUEENS

Gentle 3-Banded Acclimated Italian Stock
"They Produce"

1-24	$1.00	25-up	.90c

Select tested, $2.00 each

BARGER APIARIES
Carey, Ohio

3-banded Italian

Queens	$1.00
2-lb. pkg. with qn.	3.00
3-lb. pkg. with qn.	4.00

W. E. PLANT
Hattiesburg, Rt. 2, Miss.

Bring Your Dreams Down to Earth
Buy U. S. Savings Bonds

XUM

Whittle's

Leather Colored Italians

Get your Packages and Queens when you want them. Reserve 1951 shipping dates early.

2 lb. pkg. with queen, $2.75
3 lb. pkg. with queen, 3.75
Queens, each, .75

Our Bees and Service Will Please You.

G. E. Whittle
Star Route West
Greenville, Alabama

CAUCASIANS
CARNIOLANS

Hardy, prolific, rapid build up, best of workers. Caucasians have the longest tongue of any race.

Build beautifully white combs. GENTLEST OF ALL RACES OF BEES. Gentleness saves time, sweat, patience, and work.

Price: Untested queens, $1.00 each, Airmail.

Albert G. Hann
Glen Gardner, New Jersey.

Italian Queens Package Bees

	1-49	50-99	100-up
2 lb. w/q	$3.50	$3.25	$3.00
3 lb. w/q	4.50	4.25	4.00
4 lb. w/q	5.25	5.00	4.75
5 lb. w/q	6.00	5.75	5.50
Italian queen	1.10	1.10	1.00

Packages are shipped with full liberal over-weight and live arrival guaranteed. Our dealings with you must be 100% satisfactory. Replacement or refund on any shipment when bad order receipt is received by us. Our queens are second to none in performance. Queens clipped on request and sent airmail postpaid.

Geo. A. Hummer & Sons
Est. 1892
Prairie Point, Miss.
Western Union: Macon, Miss.

High Quality Italian Queens
BY AIR-MAIL
75c each
10 or more, 65c each.
IT PAYS to requeen with Good QUEENS
Carlus T. Harper
New Brockton, Ala.

A Talk to Beginners

(Continued from page 375)

are not sufficiently populous in bees to go through the winter, they can be united with other colonies which may have old queens. The young queens may be retained and the old ones disposed of.

Comb Honey Production

During the past 15 years I have been experimenting with producing section comb honey over two-story brood chambers. I have now come to the conclusion that this is perfectly possible—in fact, feasible. At first, I was not inclined to believe that this could be done but now I know that it can, at least here in northern Ohio when conditions are favorable for a crop.

As I view this method, it has the following advantages:

(1) A queen has more comb space for brood rearing and for the storage of pollen in a double brood chamber consequently we are likely to have very populous colonies which are needed for comb honey production.

(2) Double brood chamber colonies are not so likely to put pollen in some of the cells of comb honey sections as single-story colonies, because the double-story colonies have more comb space for the storage of pollen.

(3) Double-story brood chambers lend themselves to swarm control hive manipulation. For example, the two brood chambers may be reversed. Also a comb honey super, at the beginning of the main flow, may be placed between the two brood chambers for a week or so, and the remaining comb honey supers left on top until the swarming fever is over. The comb super which was placed between the two chambers temporarily may then be put on top. This tends to relieve congestion in the brood chamber.

(4) Last, but not least, a double brood chamber colony is likely to have an ample amount of honey and pollen for winter and early spring food requirements.

BERRY'S
Old Reliable Italian Bees
56 Years With the Bees

America's Best Package Bees and Finest Queens
INSURE your honey crop with DEPENDABLE BERRY Bees

Prices; Quantity	Queens	With queens 2 lb. pkgs.	3 lb. pkgs.	4 lb. pkgs.	5 lb. pkgs.
1 through 24	75c	$2.50	$3.50	$4.50	$5.50
25 through 99	65c	2.35	3.35	4.35	5.35
100 and up	55c	2.25	3.25	4.25	5.25

Strengthen that weak colony with a Booster package. Deduct the price of queen from queenless Booster packages.

All our queens in our packages, or individual queen orders, are SELECT QUALITY. The culls we DESTROY. Only queens we would use in our own apiaries do we cage for shipment. Queens' wings clipped FREE OF CHARGE on request.

Safe arrival and satisfaction we guarantee on everything we ship, whether packages or queens. All orders filled PROMPTLY. We have NO DISEASE. A HEALTH CERTIFICATE and directions telling how to handle accompany all shipments.

M. C. Berry & Son

P. O. Box 684 Montgomery, Alabama
Oldest Active Package Shippers in the South

LADYLIKE
Mountain Gray Caucasian Bees
produced over a 200-pound average in a 1000-colony outfit during 1950.

They will produce record crops for you if properly handled. Our circular "How to Handle Caucasian Bees" is free on request. Select untested Caucasian queens, 75c each after June first. Health certificate with each shipment.

Caucasian Apiaries Castleberry, Ala.
Rt. 1

QUEENS
YORK'S QUALITY BRED ITALIAN QUEENS

The Strain that Leading Honey Producers Prefer

1 to 24	25 to 99	100 up
$1.00 each	85c each	75c each

None better regardless of price

York Bee Company Jesup, Georgia
(The Universal Apiaries)

PACKAGE BEES & QUEENS

Quality Three-Banded Italians

Prices;	2 lb. w. Qn.	3 lb. w. Qn.	4 lb. w. Qn.	Queens
1-24	$3.00	$3.90	$4.80	85c
25-99	2.75	3.60	4.50	80
100-up	2.50	3.30	4.20	75

For packages with Dadant's Starline Hybrid D. R. Queens add 25c per package
For prices on larger quantities write or wire.

* * * * * * * * * *

Dadant's Starline Hybrids are Genuine Disease Resistant Queens. A combination is made by artificial matings of the queen and drone mothers to insure uniformity of performance and to maintain the lines in a pure state.

1-24 $1.20 25-100 $1.15 100-up $1.00

No charge for clipping, painting, or airmailing.

Garon Bee Company Donaldsonville, La.

Bee Lines to Editor

..(Continued from page 324) ..

sections which help my extracted sales. People always come back for more."—G.C.S., Minn.

* * * * *

"In the January issue I saw in your 'Asked and Answered' department where some one was asking about package bees for orchard pollination. Idea: Wouldn't it be possible and more profitable for all concerned for the man with the orchard to give the bees to a neighbor beeman for putting them in a hive and leave them until fall, and make them a good home? Otherwise they would perish in the winter and be in the way as soon as pollination was over. This would be a good way to stop swarming and the beeman would have a new swarm—' only rental is less'.

"I put a shallow super on top with burlap in for absorbing moisture and turn a cardboard box over the top with a hole at the entrance that keeps them warm—and never a swarm have I lost."—Buz-Buz.

* * * * *

"Thank you, R. H. H., April, 1951, for standing by the beekeepers who stick to their guns, rain or shine. I agree with you that all businesses are full of ups and downs in the beginning. I believe that a good many of the larger apiaries were started by fathers or grandfathers for their sons to carry on.

"Perhaps D.T.C. has seen too many of the more prosperous apiaries and does not fully realize the work and time it takes to become fully established.

"My husband is working with his father and is now the third generation of beekeepers. I can honestly say that in the past few years we have had a good share of misfortune, but we are not discouraged. We simply try again and work a little harder.

"Before I draw to a close I would like to take this opportunity on behalf of my father-in-law, my husband, and myself, to thank Gleanings for the pleasures it brings to our home."—Mrs. E. M., Ontario.

JUST NEWS

(Continued from page 369)

Beekeepers from other countries are invited to bring samples of honey (approximately ½ kilo in glass jar) for display in the section which is being devoted to an exhibition of honey from other lands. Honey samples should be labelled with the owner's name and country, and the source of the honey stated.—Nancy Ironside, Honorary Organizing Secretary, The Vicarage, Wragby, Lincoln, England.

* * * * *

The Michigan State Summer bee meeting will be held on July 26 at Alma and on July 27 at Bellaire.

* * * * *

The Ohio summer bee meeting will be held August 7 and 8 at The A. I. Root Co. plant in Medina. More details next month.

* * * * *

The Lorain County Ohio Beekeepers' fifth annual field day will be held Sunday June 24 at Wellington Fair Grounds, starting at noon with a family basket picnic. A worthwhile program of short talks and demonstrations will follow.

JUNE 1951 PRICES

BEES — **Three Banded Italians** — **QUEENS**

We guarantee full weight packages, safe arrival, young laying queens, prompt service, and satisfaction. Health certificate furnished with each shipment.

Shipped by:	Express	Truck	Parcel Post	
Prices F.O.B. Varnville, S. C.				
Queens	2 lb. & Qn.	3 lb. & Qn.	4 lb. & Qn.	5 lb. & Qn.
1-24	$.65	$2.90	$3.75	$4.60	$5.45
25-99	.60	$2.65	$3.45	$4.35	$5.05
100-499	.50	$2.40	$3.15	$3.90	$4.65

Queenless package deduct price of queen
Tested queen 65c extra.

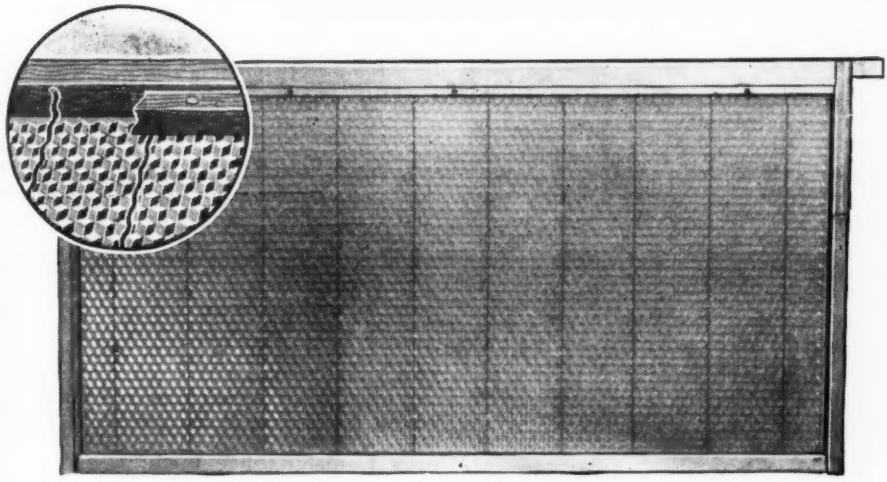
Terms: One-third upon receipt of order, balance due 10 days before shipment.

CAROLINA HONEY COMPANY

P. O. Box 163 — Varnville, S. C.
Clyde Blankenship, Mgr. — G. L. Blankenship, Prop.

BETTER BRED QUEENS — THREE BANDED ITALIANS
Watch those failing queens and poor colonies. Be sure and replace them with our Better Bred Stock and watch them pay off.
QUEENS — — — 60c Each
Calvert Apiaries — Calvert, Alabama

Kelley's Ripple Wired Foundation with Hooks



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